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Factorial-Power Selfie Expressions[1]

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Abstract

This paper brings numbers in such a way that both sides of the expressions are with same digits and in same order. One side is digits with factorial and another side are with same digits with respective powers. These types of expressions, we call as ***selfie expressions****. Three types of expressions are studied. One when digits involved are distinct, second when there is a repetition of digits but only with positive sign. The third type is with repetition of digits with positive and negative signs. In all the cases the digits follow the same order but not the operations. Operations used are only* ***addition, subtraction*** *and* ***multiplication****. This work is a combination of author's previous two papers [18, 19].*

Contents

[1]It is revised and combine version author's works http://rgmia.org/papers/v20/v20a36.pdf and http://rgmia.org/papers/v20/v20a96.pdf done in 2017.

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1 Introduction

Before starting the work on **Semi-Selfie Numbers**, let us first see some work on **Crazy Representations** and **Selfie Numbers**. This is summarized in following two subsections with respective references [22].

1.1 Crazy Representations

Here the number are written in such a way that, when you see, become very curious. Below are examples of two different ways of representations of natural numbers:

1.1.1 First Type

In this type the natural numbers are written in terms of 1 to 9 and 9 to 1 [4] in such a way that each digit is used once. See below some examples,

$$\begin{aligned}
\mathbf{999} &:= 12\times 3\times(4+5)+(67+8)\times 9 && = 9+8+7+654+321\\
\mathbf{2535} &:= 1+2345+(6+7+8)\times 9 && = 9+87\times(6+5\times 4+3)+2+1\\
\mathbf{2607} &:= 123\times 4\times 5+6+(7+8)\times 9 && = 987+6\times 54\times(3+2)\times 1\\
\mathbf{10958} &:= 12\times 3+\sqrt{4}+5!\times(67+8\times\sqrt{9}) && = (9+8\times 7\times 65+4)\times 3-2+1\\
\mathbf{11807} &:= 1\times 234\times(5+6\times 7)+89 && = -9+8+7\times(6+5)\times(4\times 3)^2\times 1.
\end{aligned}$$

1.1.2 Second Type

Here, the natural numbers are written in such a way that both bases and powers are of same digits, but not necessarily bases and powers are of same digits [24]. See below some examples:

$$\begin{aligned}
\mathbf{666} &:= -2^5+3^2+4^3+5^4\\
\mathbf{786} &:= -1^4+3^6+4^3-6^1\\
\mathbf{9711} &:= 1^3+2^4+3^8+4^2+5^5-8^1\\
\mathbf{9777} &:= 1^9+2^1+4^7-7^2-9^4\\
\mathbf{11110} &:= 1^1+2^2+3^9-5^6+6^5-9^3\\
\mathbf{11111} &:= -1^1+2^7+3^8-4^2+7^3+8^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
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1.1.3 Third Type

Based on second type still we can write natural numbers in a sequential way with uniform representations. Instead working with unequal strings as of previous section, here we worked with equal string using the digits 0 to 9, i.e., using all the 10 digits, {0,1,2,3,4,5,6,7,8,9}. The results obtained are symmetric, i.e., writing in 0 to 9 or 9 to 0, the resulting number is same. See some examples below,

$$\begin{aligned}
\mathbf{11080} &:= 0^8 + 1^9 + 2^7 + 3^6 + 4^2 + 5^5 + 6^0 + 7^1 + 8^3 + 9^4 \\
\mathbf{11081} &:= 0^8 - 1^9 + 2^6 + 3^7 + 4^4 + 5^1 + 6^5 + 7^0 + 8^2 + 9^3 \\
\mathbf{11082} &:= 0^8 + 1^9 + 2^6 + 3^7 + 4^1 + 5^4 + 6^5 + 7^3 + 8^0 + 9^2 \\
\mathbf{11083} &:= 0^8 + 1^9 + 2^6 + 3^7 + 4^4 + 5^1 + 6^5 + 7^0 + 8^2 + 9^3 \\
\mathbf{11084} &:= 0^7 + 1^9 + 2^8 + 3^6 + 4^1 + 5^5 + 6^0 + 7^3 + 8^2 + 9^4 \\
\mathbf{11085} &:= 0^8 + 1^9 + 2^6 + 3^7 + 4^4 + 5^0 + 6^5 + 7^1 + 8^2 + 9^3 \\
\mathbf{11086} &:= 0^7 + 1^9 + 2^8 + 3^6 + 4^0 + 5^5 + 6^1 + 7^3 + 8^2 + 9^4 \\
\mathbf{11087} &:= 0^6 + 1^9 - 2^8 + 3^7 + 4^2 + 5^4 + 6^5 + 7^0 + 8^1 + 9^3.
\end{aligned}$$

For more details refer author's work written as a summary of other works [22].

1.2 Selife Numbers

Recently, author studied different ways of expressing numbers in such a way that both sides are with same digits. One side is with number, and another side is an expression formed by same digits with some operations. These types of numbers we call **selfie numbers**. Some times they are called as **wild narcissistic numbers**. These numbers are represented by their own digits by use of certain operations. Subsections below give different ways of writing **selfie numbers**.

1.2.1 Selfie Numbers with Factorial and Square-Root

This subsection brings selfie numbers with use of factorial and/or square-root. See below some examples:

$$\begin{aligned}
\mathbf{936} &:= (\sqrt{9})!^3 + 6! && := 6! + (3!)^{\sqrt{9}} \\
\mathbf{1296} &:= \sqrt{(1+2)!^9/6} && := 6^{(\sqrt{9}+2-1)} \\
\mathbf{2896} &:= 2 \times (8 + (\sqrt{9})!! + 6!) && := (6! + (\sqrt{9})!! + 8) \times 2 \\
\mathbf{331779} &:= 3 + (31-7)^{\sqrt{7+9}} && := \sqrt{9} + (7 \times 7 - 1)^3 \times 3 \\
\mathbf{342995} &:= (3^4 - 2 - 9)^{\sqrt{9}} - 5 && := -5 + (-9 + 9^2 - \sqrt{4})^3 \\
\mathbf{759375} &:= (-7 + 59 - 37)^5 && := (5 + 7 + 3)^{\sqrt{9}-5+7} \\
\mathbf{759381} &:= 7 + (5 \times \sqrt{9})^{-3+8} - 1 && := -1 + (8 \times 3 - 9)^5 + 7.
\end{aligned}$$

Examples given above are with **factorial** and **square-root** [16, 17]. First column numbers are in **digit's order** and second columns are in **reverse order of digits**. For details refer author's work [5, 6, 7, 8, 9, 10]. Still, one can have interesting results just with **factorial** [10]. See below:

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{1463} &:= -1! + 4! + 6! + 3!! \\
\mathbf{10077} &:= -1! - 0! - 0! + 7! + 7! \\
\mathbf{40585} &:= 4! + 0! + 5! + 8! + 5! \\
\mathbf{80518} &:= 8! - 0! - 5! - 1! + 8! \\
\mathbf{317489} &:= -3! - 1! - 7! - 4! - 8! + 9! \\
\mathbf{352797} &:= -3! + 5 - 2! - 7! + 9! - 7! \\
\mathbf{357592} &:= -3! - 5! - 7! - 5! + 9! - 2! \\
\mathbf{357941} &:= 3! + 5! - 7! + 9! - 4! - 1!
\end{aligned}$$

$$\begin{aligned}
\mathbf{361469} &:= 3! - 6! - 1! + 4! - 6! + 9! \\
\mathbf{364292} &:= 3!! + 6! - 4! - 2! + 9! - 2! \\
\mathbf{397584} &:= -3!! + 9! - 7! + 5! + 8! + 4! \\
\mathbf{398173} &:= 3! + 9! + 8! + 1! - 7! + 3! \\
\mathbf{408937} &:= -4! + 0! + 8! + 9! + 3!! + 7! \\
\mathbf{715799} &:= -7! - 1! + 5! - 7! + 9! + 9! \\
\mathbf{720599} &:= -7! - 2! + 0! - 5! + 9! + 9!
\end{aligned}$$

$$\begin{aligned}
\mathbf{145} &:= 1! + 4! + 5! \\
\mathbf{733} &:= 7 + 3!! + 3! \\
\mathbf{5177} &:= 5! + 17 + 7!
\end{aligned}$$

$$\begin{aligned}
\mathbf{363239} &:= 36 + 323 + 9! \\
\mathbf{363269} &:= 363 + 26 + 9! \\
\mathbf{403199} &:= 40319 + 9!
\end{aligned}$$

1.2.2 Fibonacci Sequence and Selfie Numbers

The examples given in subsection 1.2.1 are with **factorial** and **square-root**. Still, one can have similar kind of results using **Fibonacci sequence** values [28]. See below:

$$\begin{aligned}
\mathbf{235} &:= 2 + F(F(F(3) + 5)) \\
\mathbf{256} &:= 2^5 \times F(6) \\
\mathbf{4427} &:= (F(4) + 4^2) \times F(F(7)) \\
\mathbf{46493} &:= F(4 \times 6) + (-4 + 9)^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{63} &:= 3 \times F(F(6)) \\
\mathbf{882} &:= 2 \times F(8) \times F(8) \\
\mathbf{1631} &:= F(13) \times (6 + 1) \\
\mathbf{54128} &:= 8 \times (F(2) + F(1 \times 4 \times 5))
\end{aligned}$$

First column values are in **digit's order** and the second columns values are in **reverse order of digits**.

1.2.3 Binomial Coefficients and Selfie Numbers

The examples given in subsection 1.2.2 are with **Fibonacci sequence** values. Still, one can have similar kind of examples, using **Binomial coefficients** [27]. See below some examples,

$$\begin{aligned}
\mathbf{6435} &:= C(C(6,\ 4),\ 3 + 5) && = C(5 \times 3,\ \sqrt{4} + 6) \\
\mathbf{15504} &:= C(15 + 5,\ 0! + 4) && = C(4 \times 05,\ 5 \times 1) \\
\mathbf{42504} &:= C(4!,\ \sqrt{2 \times 50/4}) && = C(4!,\ -05 + 24) \\
\mathbf{54264} &:= C(5 + 4^2,\ C(6,\ 4)) && = C(4! - 6/2,\ (\sqrt{4 + 5})!) \\
\mathbf{74613} &:= C(7 \times 4 - 6,\ 1 \times 3!) && = C(3! + 16,\ (-4 + 7)!)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{12650} := C(-1+26,\ 5-0!)$$
$$\mathbf{12870} := C(1\times 2\times 8,\ 7+0!)$$
$$\mathbf{14950} := C(-1+4!+\sqrt{9},\ 5-0!)$$
$$\mathbf{18564} := C(18,\ (5-6+4)!)$$
$$\mathbf{19448} := C(19-\sqrt{4},\ \sqrt{4}+8)$$
$$\mathbf{26334} := C(2+C(6,\ 3),\ 3+\sqrt{4})$$
$$\mathbf{43758} := C(4!-3!,\ 7-5+8)$$
$$\mathbf{53130} := C(5^{3-1},\ 3!-0!)$$

$$\mathbf{28} := C(8,\ 2)$$
$$\mathbf{792} := C(2\times(\sqrt{9})!,\ 7)$$
$$\mathbf{924} := C(4!/2,\ (\sqrt{9})!)$$
$$\mathbf{2024} := C(4!,\ 2+(0\times 2)!)$$
$$\mathbf{4845} := C(5\times 4,\ 8-4)$$
$$\mathbf{00378} := C(C(8,\ \sqrt{7-3}),\ 0!+0!)$$
$$\mathbf{00792} := C(2\times(\sqrt{9})!,\ 7-0!-0!)$$
$$\mathbf{00924} := C(4!/2,\ \sqrt{9}\times(0!+0!)).$$

Above numbers are in **digit's order**, **reverse order of digits** and in **both ways**. For more details refer [27].

1.2.4 Flexible Power Selfie Numbers

Below are examples of **selfie numbers**in such a way that where powers and bases are with same digits, but with different permutations [24]:

$$\mathbf{23} := -2^2+3^3$$
$$\mathbf{1654} := -1^6+6^1+5^4+4^5$$
$$\mathbf{3435} := 3^3+4^4+3^3+5^5$$
$$\mathbf{4355} := 4^5+3^4+5^3+5^5$$
$$\mathbf{39339} := -3^3+9^3+3^9+3^9-9^3$$
$$\mathbf{46360} := 4^0+6^6-3^4-6^3+0^6.$$

$$\mathbf{397612} := 3^2+9^1+7^6+6^7+1^9+2^3$$
$$\mathbf{423858} := 4^3+2^8+3^4+8^2+5^8+8^5$$
$$\mathbf{637395} := 6^5+3^3+7^3+3^9+9^6+5^7$$
$$\mathbf{758014} := 7^7+5^1+8^0+0^5+1^4-4^8$$
$$\mathbf{778530} := 7^7+7^3+8^5-5^7+3^0+0^8$$
$$\mathbf{804637} := 8^0+0^4-4^8+6^6-3^3+7^7.$$

1.2.5 Selfie Fraction

Selfie fractions are formed in such a way that numerator and denominator are with same digits. One side is number and another side with same digits with basic operations [11, 12, 13]. See below some examples:

$$\frac{\mathbf{182}}{\mathbf{6734}} := \frac{18+2}{6+734}$$
$$\frac{\mathbf{416}}{\mathbf{728}} := \frac{4\times 16}{7\times 2\times 8}$$
$$\frac{\mathbf{4980}}{\mathbf{5312}} := \frac{4-9+80}{5\times(3+1)^2}$$
$$\frac{\mathbf{3249}}{\mathbf{5168}} := \frac{(3+2^4)\times 9}{(5-1)\times 68}$$

Still, one can have **equivalent selfie fractions** with same properties [14, 15]. See examples below:

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\frac{\mathbf{284}}{\mathbf{639}} := \frac{2\times 8+4}{6+39} = \frac{28+4}{6\times(3+9)}$$
$$\frac{\mathbf{302}}{\mathbf{8154}} := \frac{30\times 2}{81\times 5\times 4} = \frac{3+02}{81+54} = \frac{3-02}{81-54}$$
$$\frac{\mathbf{73842}}{\mathbf{90516}} := \frac{7-3\times(8-4^2)}{9\times 05-1-6} = \frac{7\times(3+8)+4^2}{90+(5-1)\times 6} = \frac{738+4+2}{905+1+6}.$$

1.2.6 Narcissistic-Type Selfie Numbers

In case of **narcissistic numbers**, the powers are always fixed, for example $153 = 1^3 + 5^3 + 3^3$, but still, one can have numbers with flexible power and also with positive and negative signs. This we call as **narcissistic-type selfie numbers** [29]. See below few examples,

$$\mathbf{24} := 2^3 + 4^2$$
$$\mathbf{48} := -4^2 + 8^2$$
$$\mathbf{267} := 2^1 + 6^3 + 7^2$$
$$\mathbf{2345} := 2^5 + 3^7 + 4^0 + 5^3.$$

$$\mathbf{2352} := 2^3 + 3^7 + 5^3 + 2^5$$
$$\mathbf{2374} := -2^1 - 3^2 + 7^4 - 4^2$$
$$\mathbf{10693} := 1^1 + 0^1 + 6^5 + 9^3 + 3^7$$
$$\mathbf{10846} := -1^1 - 0^0 + 8^4 - 4^5 + 6^5.$$

These numbers are different from the one given in subsection 1.2.4. In subsection 1.2.4, the powers and bases are with same digits, while, here the powers don't have any relations with bases.

1.2.7 Narcissistic-Type Selfie Numbers with Division

Following same idea of above subsection 1.2.6 one can have **narcissistic-type selfie numbers with division** [30]. See examples below. These are divided in two types. The first column is with fixed powers and second column with variable powers:

$$\mathbf{2464} := \frac{2^5+4^5+6^5+4^5}{2^0+4^0+6^0+4^0}$$
$$\mathbf{4714} := \frac{4^5+7^5+1^5+4^5}{4^0+7^0+1^0+4^0}$$
$$\mathbf{5247} := \frac{5^5+2^5+4^5+7^5}{5^0+2^0+4^0+7^0}$$
$$\mathbf{8200} := \frac{8^5+2^5+0^5+0^5}{8^0+2^0+0^0+0^0}.$$

$$\mathbf{353} := \frac{-3^5-5^2+3^9}{3^1+5^2+3^3}$$
$$\mathbf{1337} := \frac{1^0+3^1+3^1+7^6}{-1^0+3^0+3^4+7^1}$$
$$\mathbf{10954} := \frac{-1^0-0^0+9^3+5^2+4^9}{1^0+0^0+9^0+5^1+4^2}$$
$$\mathbf{10958} := \frac{-1^0+0^0+9^2+5^2+8^5}{-1^0+0^0+9^0+5^0+8^0}.$$

It is understood that $a^0 := 0,\ a \neq 0$ and $0^0 := 1$.

1.2.8 Semi-Selfie Numbers

Semi-selfie numbers are very much similar to selfie numbers. The only difference is that not all the digits are same on both sides. Below are examples of two types of **semi-selfie numbers**, where the digits are same on both sides except powers.

For detailed study refer Taneja [30]. These numbers are extensions of the one studied by Madachy [3], p.167 - 170. Also see Heinz [1]. Madachy's work is only with single digit and positive sign.

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

- **First Type**

$$\begin{aligned}
\mathbf{2025} &:= (20+25)^2 & \mathbf{494209} &:= (494+209)^2\\
\mathbf{3025} &:= (30+25)^2 & \mathbf{1656369} &:= (1656-369)^2\\
\mathbf{314432} &:= (31-4+43-2)^3 & \mathbf{1860496} &:= (1860-496)^2\\
\mathbf{893025} &:= (8+930+2+5)^2. & \mathbf{4941729} &:= (494+1729)^2.
\end{aligned}$$

- **Second Type**

This type is little different from previous one. Here the other side is formed by two multiplicative expressions, where the first one is the sum of digits and second is with positive negative signs with power. See below examples,

$$\begin{aligned}
\mathbf{1} &:= 1\times 1^2 & \mathbf{803} &:= (8+0+3)\times(8^2+0^2+3^2)\\
\mathbf{133} &:= (1+3+3)\times(1^2+3^2+3^2) & \mathbf{912} &:= (9+1+2)\times(9^2-1^2-2^2)\\
\mathbf{135} &:= (1+3+5)\times(-1^2-3^2+5^2) & \mathbf{1148} &:= (1+1+4+8)\times(1^2+1^2+4^2+8^2)\\
\mathbf{153} &:= (1+5+3)\times(1^2+5^2-3^2) & \mathbf{1547} &:= (1+5+4+7)\times(1^2+5^2+4^2+7^2)\\
\mathbf{225} &:= (2+2+5)\times(2^2-2^2+5^2) & \mathbf{2196} &:= (2+1+9+6)\times(2^2+1^2+9^2+6^2).\\
\mathbf{315} &:= (3+1+5)\times(3^2+1^2+5^2) & &\\
\mathbf{552} &:= (5+5+2)\times(5^2+5^2-2^2) & &
\end{aligned}$$

In this case, we have very few examples. The numbers with positive signs: 1, 133, 315, 803, 1148, 1547 and 2196 can be seen in [1].

2 Selfie Expressions

This category is very much similar to *selfie numbers*, but the difference is that instead of numbers on one side, there are expressions on both sides, i.e., **same digits equality expressions**. We may call it as **selfie expressions**. Below are two different ways of expressing equalities with same digits on both sides:

$$abcd...\times efgh... = cbad...\times gfhe..\ \ \forall a,b,c,d,e,...\in \mathrm{N}_+. \tag{1}$$

$$a^b+c^d+...=ab+cd+...,\ \ \forall a,b,c,d,..\in \mathrm{N}. \tag{2}$$

2.1 Multiplication

Some examples of expression (1) are given below. These are written in such a way that on both sides of the expressions in each block separated by multiplication are with same digits.

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$2017 \times 3404 = 1702 \times 4034 \qquad 1729 \times 4358 = 2179 \times 3458$$
$$2017 \times 6808 = 1702 \times 8068 \qquad 1729 \times 4732 = 2197 \times 3724$$
$$1729 \times 3584 = 1792 \times 3458 \qquad 1729 \times 5438 = 2719 \times 3458$$
$$1729 \times 3854 = 1927 \times 3458 \qquad 1729 \times 5781 = 1927 \times 5187$$

More details can be seen in author's work [23]. Few examples can be seen at [2].

2.2 Power and Addition

Following the idea of expressions (2) the author wrote the numbers **2017** [20] and **1729** [21] as:

$$\begin{aligned}
\mathbf{2017} &:= 4^4 + 41^2 + 77^0 + 79^1 && = 44 + 412 + 770 + 791 \\
&:= 1^4 + 44^2 + 77^0 + 79^1 && = 14 + 442 + 770 + 791 \\
&:= 2^4 + 2^8 + 4^2 + 12^3 + 180^0 && = 24 + 28 + 42 + 123 + 1800 \\
&:= 1^1 + 3^6 + 5^4 + 5^4 + 6^2 + 180^0 && = 11 + 36 + 54 + 54 + 62 + 1800
\end{aligned}$$

$$\begin{aligned}
\mathbf{1729} &:= 2^7 + 40^2 + 130^0 && = 27 + 402 + 1300 \\
&:= 2^6 + 40^2 + 64^1 + 66^0 && = 26 + 402 + 641 + 660 \\
&:= 1^6 + 41^2 + 46^1 + 84^0 && = 16 + 412 + 461 + 840
\end{aligned}$$

Below are more examples,

$$\begin{aligned}
\mathbf{81} &:= 2^3 + 2^6 + 3^2 && = 23 + 26 + 32 \\
\mathbf{99} &:= 2^3 + 3^3 + 4^3 && = 23 + 33 + 43 \\
\mathbf{121} &:= 2^3 + 2^6 + 7^2 && = 23 + 26 + 72 \\
\mathbf{170} &:= 2^6 + 5^2 + 9^2 && = 26 + 52 + 92 \\
\mathbf{246} &:= 2^2 + 11^2 + 11^2 && = 22 + 112 + 112
\end{aligned}$$

$$\begin{aligned}
\mathbf{246} &:= 5^2 + 5^2 + 14^2 && = 52 + 52 + 142 \\
\mathbf{266} &:= 4^2 + 9^2 + 13^2 && = 42 + 92 + 132 \\
\mathbf{286} &:= 6^2 + 9^2 + 13^2 && = 62 + 92 + 132 \\
\mathbf{306} &:= 8^2 + 11^2 + 11^2 && = 82 + 112 + 112 \\
\mathbf{306} &:= 9^2 + 9^2 + 12^2 && = 92 + 92 + 122
\end{aligned}$$

In the above examples, the equality expressions are formed by three terms on both sides, while the numbers 2017 and 1729 are with **different terms expressions**. More detailed study can be seen at author's work [31]. In these works, instead of using only positive sign, both positive and negative signs are used.

2.3 Factorial and Power

Let us consider following expression:

$$a! \times b! + (c! + d!) \times e! + ... = a^a + b^b - c^c \times (d^d - e^e) + ..., \quad \forall a, b, c, d, e, ... \in \mathrm{N}_+, \text{ etc.} \tag{3}$$

The expressions (1), (2) and (3) are with same digits on both sides. The difference is that in the expression (3), where the sides are separated by **factorial** and **powers**, but the operations are in different ways. The order of digits on both sides are the same.

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

In the right side of the expression (3), the powers are of same digits as of bases. On the other side, the examples given in subsection 1.2.4, the power are the permutations of the same digits, but not necessarily same with each digit. This can be done with expression (3) too. In this case, we can write as

$$a! \times b! + (c! + d!) \times e! + ... = a^c + (b^d - c^a) \times d^e - e^b + ..., \quad \forall a, b, c, d, e, ... \in \mathrm{N}_+, \text{ etc.} \tag{4}$$

The aim of this paper is to study extensively the expressions (3) and (4).

3 Factorial-Power Selfie Expressions

In this paper, our aim is to work with examples based on the structure given in (3), where the expressions are separated by equality sign with **factorial** and **powers** on each side. The powers are the same as of bases. Moreover, the digits follow the same order on both sides. While, there is no rule on operations. The work is divided in three subsections. First with **different digits**, second with **repetition of digits but only with positive sign**. The third is with **positive and negative signs along with repetition of digits**.

3.1 Different Digits Equalities

As explained above, this subsection deals with examples of expression (3) with different digits.

$$\begin{aligned}
\mathbf{1} &:= 1! && = 1^1 \\
\mathbf{3} &:= 1! + 2! && = -1^1 + 2^2 \\
\\
\mathbf{144} &:= (2! - 1!) \times 3! \times 4! && = -2^2 \times (1^1 + 3^3) + 4^4 \\
\mathbf{147} &:= 1! + 2! + 3! \times 4! && = -1^1 - 2^2 \times 3^3 + 4^4 \\
\mathbf{148} &:= (1! + 4!) \times 3! - 2! && = 1^1 \times 4^4 - 3^3 \times 2^2 \\
\mathbf{152} &:= 2! + 3! \times (1! + 4!) && = 2^2 \times (-3^3 + 1^1) + 4^4 \\
\mathbf{286} &:= (-1! + 3! \times 4!) \times 2! && = -1^1 + 3^3 + 4^4 + 2^2 \\
\mathbf{287} &:= -1! + 2! \times 3! \times 4! && = 1^1 \times 2^2 + 3^3 + 4^4 \\
\mathbf{288} &:= 1! \times 2! \times 3! \times 4! && = 1^1 + 2^2 + 3^3 + 4^4 \\
\\
\mathbf{1872} &:= (3! \times 2! + 1!) \times (4! + 5!) && = 3^3 - (2^2 + 1^1) \times 4^4 + 5^5 \\
\mathbf{2074} &:= (-1! - 3! + 4!) \times (2! + 5!) && = -1^1 \times 3^3 - 4^4 \times 2^2 + 5^5 \\
\mathbf{2124} &:= (3! - 4! \times 1!) \times (2! - 5!) && = 3^3 - (4^4 + 1^1) \times 2^2 + 5^5 \\
\mathbf{2734} &:= -1! \times 2! + (-3! + 5!) \times 4! && = (-1^1 - 2^2) \times 3^3 + 5^5 - 4^4 \\
\mathbf{2760} &:= (-1! + 2! - 3! + 5!) \times 4! && = -1^1 - 2^2 \times 3^3 + 5^5 - 4^4 \\
\mathbf{2762} &:= 4! \times (1! - 3! + 5!) + 2! && = -4^4 + 1^1 + 5^5 - 3^3 \times 2^2 \\
\mathbf{2764} &:= 3! - 2! + (4! - 1!) \times 5! && = (3^3 - 2^2) \times 4^4 + 1^1 - 5^5 \\
\mathbf{2837} &:= -1! + (5! - 2!) \times 4! + 3! && = -1^1 + 5^5 - 2^2 - 4^4 - 3^3
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{2838} &:= (-1! \times 2! + 5!) \times 4! + 3! && = -1^1 \times 2^2 + 5^5 - 4^4 - 3^3 \\
&:= 4! \times (5! - 2!) + 3! && = -4^4 + 5^5 - 2^2 - 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{2839} &:= 1! + 3! + 4! \times (5! - 2!) && = 1^1 - 3^3 - 4^4 + 5^5 - 2^2 \\
\mathbf{2891} &:= -1! + 2! \times 3! + 4! \times 5! && = -1^1 - 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2892} &:= 2! \times 3! + 4! \times 5! && = -2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2893} &:= 1! + 2! \times 3! + 4! \times 5! && = 1^1 - 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2900} &:= (1! + 5!) \times 4! - 3! + 2! && = 1^1 \times 5^5 - 4^4 + 3^3 + 2^2 \\
\mathbf{2976} &:= (-1! \times 2! + 3! + 5!) \times 4! && = -1^1 + 2^2 \times 3^3 + 5^5 - 4^4 \\
\mathbf{2977} &:= 1! + (-2! + 3! + 5!) \times 4! && = 1^1 \times 2^2 \times 3^3 + 5^5 - 4^4 \\
\mathbf{3004} &:= 3! - 2! + (1! + 4!) \times 5! && = 3^3 \times (2^2 + 1^1) - 4^4 + 5^5 \\
\mathbf{3246} &:= 3! + (2! + 1! + 4!) \times 5! && = -3^3 \times (2^2 + 1^1) + 4^4 + 5^5 \\
\mathbf{3300} &:= (5! + 3! \times 2!) \times (1! + 4!) && = 5^5 - 3^3 \times (2^2 - 1^1) + 4^4 \\
\mathbf{3359} &:= -1! + (-2! + 3! + 4!) \times 5! && = 1^1 + 2^2 - 3^3 + 4^4 + 5^5 \\
\mathbf{3782} &:= (1! + 3! + 4!) \times (2! + 5!) && = -1^1 + 3^3 \times 4^4 - 2^2 - 5^5 \\
\mathbf{4104} &:= -(1! \times 2! + 3!) \times 5! + 4! + 7! && = -1^1 + (2^2 \times 3^3 + 5^5) \times 4^4 - 7^7 \\
\mathbf{4105} &:= 1! - (2! + 3!) \times 5! + 4! + 7! && = ((1^1 \times 2^2) \times 3^3 + 5^5) \times 4^4 - 7^7 \\
\mathbf{4283} &:= -1! - 3! \times (5! + 2!) - 4! + 7! && = (1^1 - 3^3 - 5^5) \times (2^2 + 4^4) + 7^7 \\
\mathbf{5129} &:= 1! - 3! - 2! + 5! - 4! + 7! && = ((1^1 + 3^3) \times 2^2 + 5^5) \times 4^4 - 7^7 \\
\mathbf{5592} &:= (-1! + 5! \times 2! - 3!) \times 4! && = (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4 \\
\mathbf{5615} &:= -1! + 4! \times (-3! + 2! \times 5!) && = (1^1 - 4^4) \times 3^3 + 2^2 \times 5^5 \\
\mathbf{7488} &:= (1! + 2!) \times (-4! + 5! + 6!) + 7! && = (-1^1 - 2^2 + 4^4) \times 5^5 + 6^6 - 7^7 \\
\mathbf{7918} &:= -1! \times 2! + 4! \times 5! + 7! && = (-1^1 - 2^2 - 4^4) \times 5^5 + 7^7 \\
\mathbf{8634} &:= (1! + 2!) \times 4! \times 5! - 3! && = (1^1 - 2^2) \times (4^4 - 5^5) + 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{17040} &:= (-1! \times 2! + 3! \times 4!) \times 5! && = (1^1 + 2^2) \times (3^3 + 4^4 + 5^5) \\
\mathbf{22200} &:= (-1! + (2! + 3!) \times 4!) \times 5! - 6! && = (1^1 - 2^2 + 3^3) \times (-4^4 + 5^5) - 6^6 \\
\mathbf{23520} &:= (1! + 3!) \times 5! \times (4! - 2!) + 7! && = -1^1 \times 3^3 - 5^5 \times 4^4 + 2^2 + 7^7 \\
\mathbf{25920} &:= (1! \times 2! \times 3! + 4!) \times 6! && = (1^1 - 2^2) \times 3^3 \times 4^4 + 6^6 \\
\mathbf{34416} &:= 4! \times (6! \times 2! - 1!) - 5! && = 4^4 + 6^6 + 2^2 \times (1^1 - 5^5) \\
\mathbf{34440} &:= (-1! - 3! + 4! \times 2!) \times (5! + 6!) && = 1^1 + 3^3 + 4^4 - 2^2 \times 5^5 + 6^6 \\
\mathbf{37466} &:= (1! + 3! \times 5! + 6!) \times (2! + 4!) && = -1^1 + 3^3 \times 5^5 - 6^6 + 2^2 - 4^4 \\
\mathbf{39600} &:= (1! + 3! + 2! \times 4!) \times 6! && = (1^1 + 3^3) \times (2^2 - 4^4) + 6^6 \\
\mathbf{40584} &:= (-1! + (3! + 5! + 6!) \times 2!) \times 4! && = (1^1 + 3^3) \times 5^5 - 6^6 - 2^2 - 4^4 \\
\mathbf{42480} &:= (-1! - 2! \times (4! + 3!) + 5!) \times 6! && = -1^1 \times 2^2 \times 4^4 - 3^3 - 5^5 + 6^6
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{56880} &:= (1! - 2! \times 4! + 3! + 5!) \times 6! && = (-1^1 + 2^2) \times (4^4 + 3^3 + 5^5) + 6^6 \\
\mathbf{86808} &:= (1! + 3!) \times 4! + 5! \times (2! + 6!) && = (1^1 + 3^3 \times 4^4 + 5^5) \times 2^2 + 6^6 \\
\\
\mathbf{103272} &:= (-1! \times 2! + 6!) \times 4! \times 3! - 5! && = -1^1 + 2^2 \times (6^6 + 4^4) - 3^3 \times 5^5 \\
\mathbf{103273} &:= 1! - (2! - 6!) \times 4! \times 3! - 5! && = 1^1 \times 2^2 \times (6^6 + 4^4) - 3^3 \times 5^5 \\
\mathbf{174228} &:= ((1! + 5!) \times 6! - 3!) \times 2! && = (-1^1 - 5^5 + 6^6 + 3^3) \times 2^2 \\
\mathbf{198720} &:= 6! \times 3! \times (4! - 1!) \times 2! && = (6^6 - 3^3 \times 4^4) \times (1^1 + 2^2) \\
\mathbf{673944} &:= -(1! + 2! - 5!) \times (6! + 7!) + 4! && = (1^1 - 2^2) \times (5^5 + 6^6) + 7^7 - 4^4 \\
\\
\mathbf{4752030} &:= 1! \times 3! + 5! \times (8! - 6!) + 4! && = (1^1 - 3^3) \times 5^5 + 8^8 - 6^6 \times 4^4 \\
\mathbf{4846327} &:= 1! + 3! + 5! \times (4! + 8!) + 7! && = (-1^1 + 3^3) \times 5^5 \times 4^4 - 8^8 + 7^7 \\
\mathbf{5183880} &:= (-1! + (3! + 4!) \times 2! \times 6!) \times 5! && = (-1^1 + 3^3) \times (4^4 + 2^2 \times (6^6 + 5^5))
\end{aligned}$$

3.2 Repeated Digits Equalities with Positive Sign

This subsection deals with examples of expression (3) with repetition of digits but with positive sign.

$$\begin{aligned}
\mathbf{1} &:= 1! && = 1^1 \\
\mathbf{2} &:= 1! + 1! && = 1^1 + 1^1 \\
\mathbf{3} &:= 1! + 1! + 1! && = 1^1 + 1^1 + 1^1 \\
\mathbf{4} &:= 1! + 1! + 2! && = 1^1 \times 1^1 \times 2^2 \\
\mathbf{5} &:= 1! + 1! + 1! + 1! + 1! && = 1^1 + 1^1 + 1^1 + 1^1 + 1^1 \\
\mathbf{6} &:= (1! + 1! + 1!) \times 2! && = (1^1 + 1^1) \times 1^1 + 2^2 \\
\mathbf{7} &:= 1! + (1! + 1! + 1!) \times 2! && = 1^1 + 1^1 + 1^1 \times 1^1 + 2^2 \\
\mathbf{8} &:= (1! + 1! + 1! + 1!) \times 2! && = 1^1 + 1^1 + 1^1 + 1^1 + 2^2 \\
\mathbf{9} &:= (1! + 2!) \times (1! + 2!) && = (1^1 + 2^2) \times 1^1 + 2^2 \\
\\
\mathbf{10} &:= (1! + 1! + 1! + 2!) \times 2! && = 1^1 + 1^1 \times 1^1 + 2^2 + 2^2 \\
\mathbf{11} &:= (1! + 1! + 1!) \times (1! + 2!) + 2! && = 1^1 + 1^1 + 1^1 \times 1^1 + 2^2 + 2^2 \\
\mathbf{12} &:= (2! + 2!) \times (1! + 2!) && = 2^2 + 2^2 \times 1^1 + 2^2 \\
\mathbf{13} &:= 1! + (2! + 2!) \times (1! + 2!) && = 1^1 + 2^2 + 2^2 \times 1^1 + 2^2 \\
\mathbf{14} &:= ((1! + 2!) \times 2! + 1!) \times 2! && = 1^1 + 2^2 + 2^2 + 1^1 + 2^2 \\
\mathbf{15} &:= (1! \times 1! + 2! + 2!) \times (1! + 2!) && = 1^1 + 1^1 + 2^2 + 2^2 + 1^1 + 2^2 \\
\mathbf{16} &:= 2! \times 2! \times 2! \times 2! && = 2^2 + 2^2 + 2^2 + 2^2 \\
\mathbf{17} &:= 1! + (2! + 2!) \times 2! \times 2! && = 1^1 + 2^2 + 2^2 + 2^2 + 2^2 \\
\mathbf{18} &:= (1! + 1! + 2!) \times 2! \times 2! + 2! && = 1^1 + 1^1 + 2^2 + 2^2 + 2^2 + 2^2 \\
\mathbf{20} &:= ((2! + 2!) \times 2! + 2!) \times 2! && = 2^2 + 2^2 + 2^2 + 2^2 + 2^2 \\
\mathbf{24} &:= (1! + 2!) \times 2! \times 2! \times 2! && = 1^1 \times 2^2 + 2^2 + 2^2 \times 2^2
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{25} &:= 1! + (1! + 2!) \times 2! \times 2! \times 2! && = 1^1 \times 1^1 + 2^2 + 2^2 + 2^2 \times 2^2 \\
\mathbf{26} &:= (1! + (1! + 2!) \times 2! \times 2!) \times 2! && = 1^1 + 1^1 + 2^2 + 2^2 + 2^2 \times 2^2 \\
\mathbf{28} &:= (1! + (1! + 2!) \times 2!) \times 2! \times 2! && = (1^1 + 1^1) \times 2^2 + 2^2 + 2^2 \times 2^2 \\
\mathbf{32} &:= (1! + 1! + 2!) \times 2! \times 2! \times 2! && = (1^1 + 1^1 + 2^2) \times 2^2 + 2^2 + 2^2 \\
\mathbf{35} &:= (1! + 1! + 1! + 2!) \times (1! + 3!) && = 1^1 + 1^1 + 1^1 + 2^2 + 1^1 + 3^3 \\
\mathbf{36} &:= (1! + 2!) \times 2! \times 3! && = 1^1 + 2^2 + 2^2 + 3^3 \\
\mathbf{37} &:= 1! + (1! + 2!) \times 2! \times 3! && = 1^1 + 1^1 + 2^2 + 2^2 + 3^3 \\
\mathbf{38} &:= 1! + 1! + (1! + 2!) \times 2! \times 3! && = 1^1 + 1^1 + 1^1 + 2^2 + 2^2 + 3^3 \\
\mathbf{39} &:= (2! \times 3! + 1!) \times (1! + 2!) && = 2^2 + 3^3 + (1^1 + 1^1) \times 2^2 \\
\mathbf{40} &:= ((1! + 2!) \times 3! + 2!) \times 2! && = 1^1 + 2^2 + 3^3 + 2^2 + 2^2 \\
\mathbf{41} &:= 1! + (1! + 2! + 2!) \times (3! + 2!) && = 1^1 + 1^1 + 2^2 + 2^2 + 3^3 + 2^2 \\
\mathbf{42} &:= (1! + (1! + 1! + 1!) \times 2!) \times 3! && = (1^1 + 1^1 + 1^1) \times (1^1 + 2^2) + 3^3 \\
\mathbf{43} &:= 1! + (1! + (1! + 2!) \times 2!) \times 3! && = (1^1 + 1^1 + 1^1) \times 2^2 + 2^2 + 3^3 \\
\mathbf{45} &:= (1! + (1! + 3!) \times 2!) \times (1! + 2!) && = 1^1 + 1^1 + 3^3 + (2^2 \times 1^1) \times 2^2 \\
\mathbf{48} &:= (1! + 1! + 2!) \times 2! \times 3! && = 1^1 + (1^1 + 2^2) \times 2^2 + 3^3 \\
\mathbf{49} &:= 1! \times 1! + (2! + 2!) \times 2! \times 3! && = 1^1 + 1^1 + 2^2 + 2^2 \times 2^2 + 3^3 \\
\mathbf{51} &:= 1! + (1! + (2! + 2!) \times 3!) \times 2! && = (1^1 \times 1^1 + 2^2) \times 2^2 + 3^3 + 2^2 \\
\mathbf{52} &:= (1! + 1! + 2!) \times (2! \times 3! + 1!) && = (1^1 + 1^1 + 2^2) \times 2^2 + 3^3 + 1^1 \\
\mathbf{55} &:= 1! + (1! + (2! + 2!) \times 2!) \times 3! && = (1^1 + 1^1 + 2^2) \times 2^2 + 2^2 + 3^3 \\
\mathbf{56} &:= (1! + 1! + 3!) \times (1! + 3!) && = (1^1 + 1^1 + 3^3) \times 1^1 + 3^3 \\
\mathbf{57} &:= 1! + (1! + 1! + 3!) \times (1! + 3!) && = (1^1 + 1^1 + 1^1 + 3^3) \times 1^1 + 3^3 \\
\mathbf{60} &:= (1! + 2! + 2!) \times 2! \times 3! && = 1^1 + (2^2 + 2^2) \times 2^2 + 3^3 \\
\mathbf{61} &:= 1! + (1! + 1! + 2! + 3!) \times 3! && = 1^1 + 1^1 + 1^1 + 2^2 + 3^3 + 3^3 \\
\mathbf{63} &:= (1! \times 1! + 2! + 3!) \times (1! + 3!) && = (1^1 + 1^1) \times 2^2 + 3^3 + 1^1 + 3^3 \\
\mathbf{64} &:= (1! + 1! + 2!) \times 2! \times (2! + 3!) && = 1^1 + (1^1 + 2^2 + 2^2) \times 2^2 + 3^3 \\
\mathbf{66} &:= (2! + 3!) \times (2! + 3!) + 2! && = 2^2 + 3^3 + 2^2 + 3^3 + 2^2 \\
\mathbf{70} &:= (1! + 3!) \times (2! + 2! + 3!) && = 1^1 \times 3^3 + 2^2 \times 2^2 + 3^3 \\
\mathbf{72} &:= (1! + 1! + 2! + 2! + 3!) \times 3! && = 1^1 + 1^1 + 2^2 \times 2^2 + 3^3 + 3^3 \\
\mathbf{74} &:= 1! \times 2! + 2! \times 3! \times 3! && = (1^1 + 2^2) \times 2^2 + 3^3 + 3^3 \\
\mathbf{78} &:= 1! + 1! + 2! \times (2! + 3! \times 3!) && = (1^1 + 1^1 + 2^2) \times 2^2 + 3^3 + 3^3 \\
\mathbf{84} &:= (1! + 1! \times 1! + 3! + 3!) \times 3! && = 1^1 + 1^1 + 1^1 + 3^3 + 3^3 + 3^3 \\
\mathbf{85} &:= 1! + (2! + 3! + 3!) \times 3! && = 1^1 \times 2^2 + 3^3 + 3^3 + 3^3 \\
\mathbf{86} &:= 2! + (2! + 2! \times 3!) \times 3! && = (2^2 + 2^2) \times 2^2 + 3^3 + 3^3 \\
\mathbf{87} &:= 1! + (1! + 3!) \times (3! + 3!) + 2! && = 1^1 + 1^1 + 3^3 + 3^3 + 3^3 + 2^2 \\
\mathbf{89} &:= 1! + ((1! + 3!) \times 3! + 2!) \times 2! && = (1^1 + 1^1) \times 3^3 + 3^3 + 2^2 + 2^2 \\
\mathbf{90} &:= (1! + 1! + 1! + 2! \times 3!) \times 3! && = 1^1 + (1^1 + 1^1) \times (2^2 + 3^3) + 3^3
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{91} := (1! \times 1! + 2! \times 3!) \times (1! + 3!) = (1^1 + 1^1) \times (2^2 + 3^3 + 1^1) + 3^3$$
$$\mathbf{97} := 1! \times 1! + 2! \times (2! + 3!) \times 3! = (1^1 + 1^1) \times (2^2 + 2^2 + 3^3) + 3^3$$

$$\mathbf{108} := (1! \times 3! + 3! + 3!) \times 3! = 1^1 \times 3^3 + 3^3 + 3^3 + 3^3$$
$$\mathbf{109} := 1! + (3! + 3! + 3!) \times 3! = 1^1 + 3^3 + 3^3 + 3^3 + 3^3$$
$$\mathbf{110} := 1! + 1! + (3! + 3! + 3!) \times 3! = 1^1 + 1^1 + 3^3 + 3^3 + 3^3 + 3^3$$
$$\mathbf{111} := (1! + 1! + 1!) \times (1! + 3! \times 3!) = (1^1 + 1^1 + 1^1) \times (1^1 + 3^3) + 3^3$$
$$\mathbf{112} := (1! + 1! + 3! + 3!) \times (2! + 3!) = (1^1 + 1^1) \times 3^3 + 3^3 + 2^2 + 3^3$$
$$\mathbf{113} := 1! + (1! + 3!) \times 2! \times (2! + 3!) = (1^1 + 1^1) \times (3^3 + 2^2 \times 2^2) + 3^3$$
$$\mathbf{114} := (1! + 1! + 3! \times 3!) \times (1! + 2!) = (1^1 + 1^1) \times (3^3 + 3^3 + 1^1) + 2^2$$
$$\mathbf{120} := (1! + 1! + (1! + 2!) \times 3!) \times 3! = (1^1 + 1^1 + 1^1) \times (2^2 + 3^3) + 3^3$$
$$\mathbf{144} := 1! \times 1! \times 3! \times 2! \times 2! \times 3! = 1^1 + (1^1 + 3^3) \times 2^2 + 2^2 + 3^3$$
$$\mathbf{147} := 1! + (1! + 3! \times 2! \times 3!) \times 2! = (1^1 + 1^1 + 3^3) \times 2^2 + 3^3 + 2^2$$
$$\mathbf{151} := 1! + (1! + (2! + 2!) \times 3!) \times 3! = 1^1 \times 1^1 \times 2^2 \times (2^2 + 3^3) + 3^3$$
$$\mathbf{152} := (1! + 1! + 2!) \times (2! + 3! \times 3!) = 1^1 \times 1^1 + 2^2 \times (2^2 + 3^3) + 3^3$$
$$\mathbf{156} := ((1! + 1! + 2!) \times 3! + 2!) \times 3! = 1^1 + (1^1 + 2^2 + 3^3) \times 2^2 + 3^3$$
$$\mathbf{168} := (1! + 1! + 2!) \times 3! \times (1! + 3!) = 1^1 + (1^1 + 2^2) \times (3^3 + 1^1) + 3^3$$
$$\mathbf{170} := (1! + (1! + 3!) \times 2! \times 3!) \times 2! = (1^1 + 1^1) \times (3^3 + 2^2) + 3^3 \times 2^2$$
$$\mathbf{216} := (1! + 2!) \times 3! \times 2! \times 3! = (1^1 \times 2^2) \times 3^3 + 2^2 \times 3^3$$
$$\mathbf{217} := 1! + (1! + 2!) \times 3! \times 2! \times 3! = 1^1 \times 1^1 + 2^2 \times 3^3 + 2^2 \times 3^3$$
$$\mathbf{222} := (1! + (1! + 2!) \times 2! \times 3!) \times 3! = 1^1 + 1^1 + 2^2 + 2^2 \times (3^3 + 3^3)$$
$$\mathbf{288} := (4! \times 2!) \times (2! + 2! + 2!) = 4^4 + 2^2 \times 2^2 + 2^2 \times 2^2$$
$$\mathbf{289} := 1! \times 1! + 2! \times 3! \times 4! = 1^1 + 1^1 + 2^2 + 3^3 + 4^4$$
$$\mathbf{291} := 1! + 2! + 2! \times 3! \times 4! = 1^1 \times 2^2 + 2^2 + 3^3 + 4^4$$
$$\mathbf{292} := (1! \times 2! + 3! \times 4!) \times 2! = 1^1 + 2^2 + 3^3 + 4^4 + 2^2$$
$$\mathbf{293} := 1! \times 1! + 2! \times (2! + 3! \times 4!) = 1^1 + 1^1 + 2^2 + 2^2 + 3^3 + 4^4$$
$$\mathbf{295} := 1! + (1! + 2! + 3! \times 4!) \times 2! = (1^1 + 1^1) \times 2^2 + 3^3 + 4^4 + 2^2$$
$$\mathbf{300} := (1! \times 2! + 2! \times 4!) \times 3! = 1^1 + 2^2 \times 2^2 + 4^4 + 3^3$$
$$\mathbf{301} := 1! \times 1! + 3! \times (2! + 2! \times 4!) = 1^1 + 1^1 + 3^3 + 2^2 \times 2^2 + 4^4$$
$$\mathbf{307} := 1! + (1! + 2! + 2! \times 4!) \times 3! = (1^1 + 1^1 + 2^2) \times 2^2 + 4^4 + 3^3$$
$$\mathbf{312} := (1! \times 1! + 3! + 3!) \times 4! = 1^1 + 1^1 + 3^3 + 3^3 + 4^4$$
$$\mathbf{313} := 1! \times 1! + (3! + 3! + 1!) \times 4! = 1^1 + 1^1 + 3^3 + 3^3 + 1^1 + 4^4$$
$$\mathbf{314} := (1! + 3! + 3!) \times 4! + 2! = 1^1 \times 3^3 + 3^3 + 4^4 + 2^2$$
$$\mathbf{315} := 1! + (1! + 3! + 3!) \times 4! + 2! = 1^1 \times 1^1 + 3^3 + 3^3 + 4^4 + 2^2$$
$$\mathbf{318} := 2! \times (2! + 4!) \times 3! + 3! = 2^2 + 2^2 + 4^4 + 3^3 + 3^3$$
$$\mathbf{324} := (1! + 2! + 3!) \times 3! \times 3! = 1^1 \times 2^2 \times (3^3 + 3^3 + 3^3)$$

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$$\mathbf{325} := 1! + (1! + 2! + 3!) \times 3! \times 3! = 1^1 \times 1^1 + 2^2 \times (3^3 + 3^3 + 3^3)$$
$$\mathbf{326} := 2! + (2! \times 4! + 3!) \times 3! = 2^2 \times 2^2 + 4^4 + 3^3 + 3^3$$
$$\mathbf{336} := (1! + (1! + 2!) \times 2!) \times 2! \times 4! = (1^1 \times 1^1 + 2^2) \times 2^2 \times 2^2 + 4^4$$
$$\mathbf{337} := 1! + (1! + 1! + 3! + 3!) \times 4! = (1^1 + 1^1) \times 1^1 \times 3^3 + 3^3 + 4^4$$
$$\mathbf{338} := (1! + 1!) \times (1! + (1! + 3!) \times 4!) = 1^1 + (1^1 + 1^1 + 1^1) \times 3^3 + 4^4$$
$$\mathbf{364} := (1! + 1! + 4!) \times (3! + 1!) \times 2! = 1^1 \times 1^1 \times 4^4 + 3^3 \times 1^1 \times 2^2$$
$$\mathbf{384} := (2! + 2!) \times 2! \times 2! \times 4! = (2^2 + 2^2) \times 2^2 \times 2^2 + 4^4$$
$$\mathbf{385} := 1! \times 1! + (3! + 2!) \times 2! \times 4! = 1^1 + (1^1 + 3^3 + 2^2) \times 2^2 + 4^4$$
$$\mathbf{388} := (1! + 1!) \times (2! + (3! + 2!) \times 4!) = (1^1 + 1^1 + 2^2 + 3^3) \times 2^2 + 4^4$$
$$\mathbf{391} := 1! + (1! + 3! + 3!) \times (3! + 4!) = (1^1 + 1^1) \times (3^3 + 3^3) + 3^3 + 4^4$$
$$\mathbf{392} := (1! + 1! + 3!) \times (1! + 2! \times 4!) = 1^1 \times 1^1 + 3^3 \times (1^1 + 2^2) + 4^4$$
$$\mathbf{432} := 1! \times 1! \times 3! \times 3! \times 3! \times 2! = ((1^1 + 1^1) \times 3^3 + 3^3 + 3^3) \times 2^2$$
$$\mathbf{480} := (1! + 1!) \times (2! + 2! + 3!) \times 4! = (1^1 + 1^1) \times (2^2 + 2^2 \times 3^3) + 4^4$$
$$\mathbf{504} := (1! + (1! + 2!) \times 3! + 2!) \times 4! = (1^1 + 1^1) \times 2^2 \times (3^3 + 2^2) + 4^4$$
$$\mathbf{576} := (1! + 1! + 1!) \times (2! + 3!) \times 4! = (1^1 + 1^1) \times (1^1 + 2^2 + 3^3 + 4^4)$$
$$\mathbf{578} := (1! + 1! + 2!) \times 3! \times 4! + 2! = (1^1 + 1^1) \times (2^2 + 3^3 + 4^4) + 2^2$$
$$\mathbf{580} := 2! \times (2! + (2! \times 3!) \times 4!) = (2^2 + 2^2 + 2^2) \times 3^3 + 4^4$$
$$\mathbf{582} := (1! \times 1! + (2! + 2!) \times 4!) \times 3! = (1^1 + 1^1) \times (2^2 + 2^2 + 4^4 + 3^3)$$
$$\mathbf{601} := 1! + (1! + 4!) \times 2! \times (3! + 3!) = (1^1 + 1^1) \times (4^4 + 2^2 + 3^3) + 3^3$$
$$\mathbf{624} := (1! + 3! \times 2!) \times (4! + 4!) = (1^1 + 3^3) \times 2^2 + 4^4 + 4^4$$
$$\mathbf{625} := 1! + (1! + 3! \times 2!) \times (4! + 4!) = 1^1 + (1^1 + 3^3) \times 2^2 + 4^4 + 4^4$$
$$\mathbf{636} := 2! \times 3! + (2! + 4!) \times 4! = (2^2 + 3^3) \times 2^2 + 4^4 + 4^4$$
$$\mathbf{648} := (1! \times 1! + 2!) \times 3! \times 3! \times 3! = (1^1 + 1^1) \times 2^2 \times (3^3 + 3^3 + 3^3)$$
$$\mathbf{696} := (1! + (1! + 3!) \times 2! \times 2!) \times 4! = (1^1 + 1^1 + 3^3 \times 2^2) \times 2^2 + 4^4$$
$$\mathbf{720} := (1! + (1! + 3!) \times 2!) \times 2! \times 4! = (1^1 + 1^1 + 3^3) \times 2^2 \times 2^2 + 4^4$$
$$\mathbf{728} := 2! + 3! + (3! + 4!) \times 4! = 2^2 \times (3^3 + 3^3) + 4^4 + 4^4$$
$$\mathbf{864} := 2! \times 3! \times 3! \times (3! + 3!) = 2^2 \times 3^3 + 3^3 + 3^3 \times 3^3$$
$$\mathbf{876} := (1! + 1! \times 1! + 3! \times 4!) \times 3! = (1^1 + 1^1 + 1^1) \times (3^3 + 4^4) + 3^3$$

$$\mathbf{1014} := (1! \times 1! + 3!) \times 3! \times 4! + 3! = 1^1 + 1^1 + 3^3 \times 3^3 + 4^4 + 3^3$$
$$\mathbf{1080} := (1! + (1! + 3!) \times 3! + 2!) \times 4! = 1^1 + 1^1 + 3^3 + 3^3 + 2^2 \times 4^4$$
$$\mathbf{1093} := 1! + (1! + 3!) \times 3! \times (2! + 4!) = 1^1 \times 1^1 \times 3^3 \times (3^3 + 2^2) + 4^4$$
$$\mathbf{1152} := (2! + 2!) \times 2! \times 3! \times 4! = 2^2 + 2^2 \times (2^2 + 3^3 + 4^4)$$
$$\mathbf{1159} := 1! + (1! + (2! + 3!) \times 4!) \times 3! = (1^1 \times 1^1) \times 2^2 \times (3^3 + 4^4) + 3^3$$
$$\mathbf{1160} := (1! + 3! \times 4!) \times (2! + 3!) = 1^1 + (3^3 + 4^4) \times 2^2 + 3^3$$
$$\mathbf{1161} := 1! + (1! + 3! \times 4!) \times (2! + 3!) = 1^1 + 1^1 + (3^3 + 4^4) \times 2^2 + 3^3$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{1164} := ((1! + 1! + 3!) \times 4! + 2!) \times 3! = 1^1 + (1^1 + 3^3 + 4^4) \times 2^2 + 3^3$$
$$\mathbf{1248} := (1! + 1! + 3!) \times 3! \times (4! + 2!) = (1^1 + 1^1 + 3^3 + 3^3 + 4^4) \times 2^2$$
$$\mathbf{1296} := ((2! + 4!) \times 2! + 2!) \times 4! = 2^2 \times 4^4 + 2^2 \times 2^2 + 4^4$$
$$\mathbf{1297} := 1! + (1! + 2! + 4!) \times 2! \times 4! = 1^1 \times 1^1 + (2^2 + 4^4) \times 2^2 + 4^4$$
$$\mathbf{1298} := (1! + (1! + 4! + 2!) \times 4!) \times 2! = 1^1 + 1^1 + 4^4 + (2^2 + 4^4) \times 2^2$$
$$\mathbf{1300} := (2! + 2! \times 4!) \times (4! + 2!) = 2^2 \times (2^2 + 4^4) + 4^4 + 2^2$$
$$\mathbf{1301} := 1! + (1! + 4!) \times 2! \times (2! + 4!) = 1^1 + (1^1 + 4^4 + 2^2) \times 2^2 + 4^4$$
$$\mathbf{1344} := 2! \times (2! + 2! + 4!) \times 4! = 2^2 \times (2^2 \times 2^2 + 4^4) + 4^4$$
$$\mathbf{1392} := ((2! + 4!) \times 2! + 3!) \times 4! = 2^2 + 4^4 + 2^2 \times (3^3 + 4^4)$$
$$\mathbf{1404} := (2! + 4!) \times (3! + 2! \times 4!) = (2^2 + 4^4 + 3^3) \times 2^2 + 4^4$$
$$\mathbf{1512} := (1! + 3!) \times 3! \times 3! \times 3! = (1^1 + 3^3 + 3^3) \times 3^3 + 3^3$$
$$\mathbf{1513} := 1! + (1! + 3!) \times 3! \times 3! \times 3! = 1^1 + (1^1 + 3^3 + 3^3) \times 3^3 + 3^3$$
$$\mathbf{1753} := 1! + (1! + 3! \times 3! \times 2!) \times 4! = 1^1 \times 1^1 \times 3^3 \times 3^3 + 2^2 \times 4^4$$
$$\mathbf{2160} := (2! + 1!) \times (3! + 4!) \times 4! = 2^2 \times (1^1 + 3^3 + 4^4 + 4^4)$$
$$\mathbf{2304} := (2! + 2!) \times 4! \times 4! = (2^2 + 2^2) \times 4^4 + 4^4$$
$$\mathbf{2305} := 1! + (2! + 2!) \times 4! \times 4! = 1^1 + (2^2 + 2^2) \times 4^4 + 4^4$$
$$\mathbf{2306} := 1! + 1! + (2! + 2!) \times 4! \times 4! = 1^1 + 1^1 + (2^2 + 2^2) \times 4^4 + 4^4$$
$$\mathbf{2308} := 2! \times (2! + (2! \times 4!) \times 4!) = 2^2 + (2^2 + 2^2) \times 4^4 + 4^4$$
$$\mathbf{2312} := (1! + 1! + 2!) \times (2! + 4! \times 4!) = (1^1 + 1^1) \times (2^2 + 2^2 \times 4^4) + 4^4$$
$$\mathbf{3388} := (1! + 1! + 2! + 4!) \times (1! + 5!) = 1^1 + 1^1 + 2^2 + 4^4 + 1^1 + 5^5$$
$$\mathbf{3389} := 1! + (1! + 5!) \times (2! + 2! + 4!) = 1^1 \times 1^1 \times 5^5 + 2^2 + 2^2 + 4^4$$
$$\mathbf{3745} := 1! \times 1! + 4! \times (3! \times 3! + 5!) = (1^1 + 1^1) \times (4^4 + 3^3 + 3^3) + 5^5$$
$$\mathbf{4176} := (1! \times 1! \times 4! \times 4! + 5!) \times 3! = (1^1 + 1^1) \times (4^4 + 4^4) + 5^5 + 3^3$$
$$\mathbf{4608} := (2! + 2!) \times 4! \times (4! + 4!) = 2^2 \times 2^2 \times 4^4 + 4^4 + 4^4$$
$$\mathbf{7200} := (1! \times 1! + 4!) \times 3! \times 2! \times 4! = 1^1 + (1^1 + 4^4) \times 3^3 + 2^2 + 4^4$$
$$\mathbf{9216} := 2! \times (2! + 3!) \times 4! \times 4! = (2^2 + 2^2 + 3^3) \times 4^4 + 4^4$$

$$\mathbf{13824} := (1! + 1!) \times 4! \times (3! + 3!) \times 4! = 1^1 \times 1^1 \times 4^4 \times 3^3 + 3^3 \times 4^4$$
$$\mathbf{20736} := (4! + 3! + 3!) \times 4! \times 4! = 4^4 \times 3^3 + 3^3 \times (4^4 + 4^4)$$
$$\mathbf{27648} := (1! + 1! + 3!) \times 3! \times 4! \times 4! = ((1^1 \times 1^1) \times 3^3 + 3^3) \times (4^4 + 4^4)$$
$$\mathbf{34560} := (1! + 1!) \times 4! \times 4! \times (4! + 3!) = ((1^1 + 1^1) \times (4^4 + 4^4) + 4^4) \times 3^3$$
$$\mathbf{41472} := (3! + 3!) \times 3! \times 4! \times 4! = (3^3 + 3^3 + 3^3) \times (4^4 + 4^4)$$
$$\mathbf{60480} := ((1! + 1!) \times (3! + 4!) + 4!) \times 6! = (1^1 \times 1^1) \times 3^3 \times (4^4 + 4^4) + 6^6$$
$$\mathbf{87864} := (2! + 5!) \times 3! \times 5! + 4! = (2^2 + 5^5) \times 3^3 + 5^5 + 4^4$$

$$\mathbf{107136} := (1! \times 1! \times 6! + 4!) \times 4! \times 3! = (1^1 + 1^1) \times 6^6 + (4^4 + 4^4) \times 3^3$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{120960} &:= (1! \times 1! \times 4! + 4! \times 3!) \times 6! && = (1^1 + 1^1) \times ((4^4 + 4^4) \times 3^3 + 6^6) \\
\mathbf{233280} &:= ((1! + 1!) \times 4! + 3!) \times 3! \times 6! && = 1^1 \times 1^1 \times 4^4 \times 3^3 \times 3^3 + 6^6 \\
\mathbf{241920} &:= (2! + 3! + 3!) \times 4! \times 6! && = 2^2 \times ((3^3 + 3^3) \times 4^4 + 6^6) \\
\mathbf{527040} &:= (2! \times 3! + 3! \times 5!) \times 6! && = 2^2 \times (3^3 \times (3^3 + 5^5) + 6^6)
\end{aligned}$$

3.3 Repeated Digits Equalities with Positive and Negative Signs

This subsection deals with examples of expression (3) with repetition of digits having positive and negative signs.

$$\begin{aligned}
\mathbf{3} &:= 1! + 2! && = -1^1 + 2^2 \\
\\
\mathbf{4} &:= 1! + 1! \times 1! + 2! && = (1^1 + 1^1 - 1^1) \times 2^2 \\
&:= 1! \times 1! \times 2! + 2! && = (1^1 + 1^1) \times 2^2 - 2^2 \\
&:= -3! + (3! - 1!) \times 2! && = (-3^3 + 3^3 + 1^1) \times 2^2 \\
\\
\mathbf{5} &:= 1! + 1! + 1! + 2! && = 1^1 + 1^1 - 1^1 + 2^2 \\
&:= -1! + 2! + 2! + 2! && = 1^1 + 2^2 + 2^2 - 2^2 \\
&:= -1! + 2! \times 3! - 3! && = 1^1 + 2^2 + 3^3 - 3^3 \\
\\
\mathbf{6} &:= 1! + 1! + 2! + 2! && = -1^1 - 1^1 + 2^2 + 2^2 \\
\\
\mathbf{7} &:= 2! \times (2! + 1!) + 1! && = 2^2 + 2^2 \times 1^1 - 1^1 \\
&:= 1! + 2! - 2! + 3! && = -(1^1 + 2^2) \times 2^2 + 3^3 \\
\\
\mathbf{8} &:= 1! \times 2! \times 2! \times 2! && = (-1^1 + 2^2) \times 2^2 - 2^2 \\
&:= 2! + 2! + 2! + 2! && = 2^2 + 2^2 + 2^2 - 2^2 \\
&:= -2! - 2! + 3! + 3! && = 2^2 + 2^2 + 3^3 - 3^3 \\
\\
\mathbf{9} &:= 1! \times 1! + 2! \times 2! \times 2! && = 1^1 + (-1^1 + 2^2) \times 2^2 - 2^2 \\
&:= 1! + 2! + 2! - 2! + 3! && = (1^1 + 2^2 + 2^2) \times 2^2 - 3^3 \\
\\
\mathbf{10} &:= 1! \times 2! + 2! + 3! && = -1^1 - 2^2 \times 2^2 + 3^3 \\
\mathbf{11} &:= 1! + 2! + 2! + 3! && = -(1^1 \times 2^2) \times 2^2 + 3^3 \\
\mathbf{12} &:= 2! \times (2! + 1!) + 3! && = -2^2 \times 2^2 + 1^1 + 3^3 \\
\\
\mathbf{13} &:= 1! + 2! + 2! + 2! + 3! && = (1^1 + 2^2) \times (2^2 + 2^2) - 3^3 \\
&:= -1! - 2! - 2! - 3! + 4! && = -(1^1 + 2^2 + 2^2) \times 3^3 + 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{14} &:= (1! + 1! + 2!) \times 2! + 3! && = -1^1 + (1^1 - 2^2) \times 2^2 + 3^3 \\
&:= (1! + 2!) \times 2! + 2! + 3! && = -1^1 - 2^2 - 2^2 - 2^2 + 3^3 \\
&:= 1! \times 2! - 3! - 3! + 4! && = (1^1 + 2^2) \times (3^3 + 3^3) - 4^4 \\
\\
\mathbf{15} &:= -1 + (2! + 2!) \times 2! \times 2! && = -1^1 + 2^2 + 2^2 + 2^2 + 2^2 \\
&:= 1! \times 1! + 2! + 2! \times 3! && = -(1^1 + 1^1) \times 2^2 - 2^2 + 3^3 \\
\\
\mathbf{16} &:= ((1! + 2!) \times 2! + 2!) \times 2! && = (1^1 + 2^2 - 2^2) \times 2^2 \times 2^2 \\
&:= -4! + (-2! - 2! + 4!) \times 2! && = (4^4 + 2^2) \times 2^2 - 4^4 \times 2^2 \\
&:= 1! \times 2! + 2! + 3! + 3! && = 1^1 \times 2^2 \times 2^2 + 3^3 - 3^3 \\
\\
\mathbf{17} &:= 1! + 2! + 2! + 3! + 3! && = 1^1 + 2^2 \times 2^2 + 3^3 - 3^3 \\
\\
\mathbf{18} &:= 2! \times (2! + 1!) \times (2! + 1!) && = 2^2 \times 2^2 - 1^1 + 2^2 - 1^1 \\
&:= (-1! + 2! + 2!) \times 3! && = -1^1 - 2^2 - 2^2 + 3^3 \\
\\
\mathbf{19} &:= 1! + (1! + 2!) \times 3! && = -(1^1 + 1^1) \times 2^2 + 3^3 \\
\\
\mathbf{20} &:= (1! + 2!) \times 3! + 2! && = 1^1 - 2^2 + 3^3 - 2^2 \\
&:= (2! + 2! + 1!) \times 2! \times 2! && = (2^2 + 2^2 + 1^1 - 2^2) \times 2^2 \\
&:= (2! + 2!) \times 3! - 3! + 2! && = 2^2 \times 2^2 + 3^3 - 3^3 + 2^2 \\
&:= -2! - 4! + 4! \times 2! - 2! && = (2^2 + 4^4 - 4^4) \times 2^2 + 2^2 \\
\\
\mathbf{21} &:= (1! + 2!) \times (1! + 3!) && = -1^1 - 2^2 - 1^1 + 3^3 \\
\mathbf{22} &:= (1! + 2! + 2! + 3!) \times 2! && = -1^1 - 2^2 - 2^2 + 3^3 + 2^2 \\
\mathbf{23} &:= 1! - 2! + 2! \times 2! \times 3! && = -1^1 \times 2^2 + 2^2 - 2^2 + 3^3 \\
\\
\mathbf{24} &:= (1! + 1! + 2!) \times 3! && = 1^1 \times 1^1 - 2^2 + 3^3 \\
&:= (1! + 1! + 1! + 1!) \times 3! && = -(1^1 + 1^1 + 1^1) \times 1^1 + 3^3 \\
\\
\mathbf{25} &:= (1! \times 1! - 3!) \times (1! - 3!) && = (1^1 + 1^1) \times (3^3 - 1^1) - 3^3 \\
&:= 1! \times 1! + (2! + 2!) \times 3! && = -1^1 - 1^1 - 2^2 + 2^2 + 3^3 \\
\\
\mathbf{26} &:= (1! + 2! \times 3!) \times 2! && = -1^1 - 2^2 + 3^3 + 2^2 \\
&:= (1! + 1!) \times (1! + 3! + 3!) && = -1^1 + (1^1 + 1^1) \times 3^3 - 3^3 \\
\\
\mathbf{27} &:= (1! + 2!) \times (1! + 2! + 3!) && = ((1^1 + 2^2) \times 1^1 - 2^2) \times 3^3
\end{aligned}$$

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$$\begin{aligned}
\mathbf{28} &:= (2!+2!)\times(1!+3!) && = -2^2+2^2+1^1+3^3\\
&:= -3!-1!+1!+3!\times 3! && = 3^3+1^1\times 1^1+3^3-3^3\\
\\
\mathbf{29} &:= -1!\times 1!-3!+3!\times 3! && = 1^1+1^1+3^3+3^3-3^3\\
&:= (1!+2!+2!)\times 3!-1! && = 1^1+2^2-2^2+3^3+1^1\\
\\
\mathbf{30} &:= (1!+2!)\times 3!+3!+3! && = -1^1+2^2+3^3-3^3+3^3\\
&:= -(1!+2!)\times 3!+4!+4! && = -1^1+2^2+3^3-4^4+4^4\\
\\
\mathbf{31} &:= -1!+2!-3!+3!\times 3! && = 1^1\times 2^2+3^3+3^3-3^3\\
&:= 1!-4!+4!\times 2!+3! && = (1^1+4^4-4^4)\times 2^2+3^3\\
\\
\mathbf{32} &:= 1!\times 2!-3!+3!\times 3! && = 1^1+2^2+3^3+3^3-3^3\\
&:= -4!+(4!+2!+2!)\times 2! && = (-4^4+4^4+2^2+2^2)\times 2^2\\
\\
\mathbf{33} &:= 1!+(2!+2!)\times(2!+3!) && = (1^1-2^2)\times(2^2\times 2^2-3^3)\\
\\
\mathbf{34} &:= (3!+2!)\times(3!-2!)+2! && = 3^3-2^2+3^3-2^2\times 2^2\\
&:= 3!+(2!+2!)\times(1!+3!) && = 3^3-2^2\times(2^2+1^1)+3^3\\
\\
\mathbf{35} &:= -1!+(1!+2!)\times 2!\times 3! && = (-1^1-1^1+2^2)\times 2^2+3^3\\
\mathbf{36} &:= 2!\times 3!\times(3!-1!)-4! && = -2^2\times(3^3+3^3+1^1)+4^4\\
\mathbf{37} &:= 1!+(2!+2!+2!)\times 3! && = 1^1\times 2^2\times 2^2\times 2^2-3^3\\
\\
\mathbf{38} &:= (3!+3!+3!)\times 2!+2! && = -3^3-3^3+(3^3-2^2)\times 2^2\\
&:= (-1!+2!)\times 2!+3!\times 3! && = -1^1\times 2^2\times 2^2+3^3+3^3\\
\\
\mathbf{39} &:= (1!+3!\times 2!)\times(1!+2!) && = 1^1\times 3^3+(2^2-1^1)\times 2^2\\
&:= 1!+2!+2!\times 3!+4! && = -1^1-(2^2+2^2)\times 3^3+4^4\\
\\
\mathbf{40} &:= (2!+3!+2!)\times 2!\times 2! && = 2^2\times(3^3-2^2\times 2^2)-2^2\\
&:= 2!+3!+2!+3!+4! && = -2^2\times 3^3-2^2\times 3^3+4^4\\
\\
\mathbf{41} &:= -1!+2!\times 3!+3!+4! && = 1^1-2^2\times(3^3+3^3)+4^4\\
\\
\mathbf{42} &:= (2!+2!+2!)\times 3!+3! && = -2^2-2^2-2^2+3^3+3^3\\
&:= (1!+2!)\times 2!\times 3!+3! && = (1^1-2^2)\times 2^2+3^3+3^3
\end{aligned}$$

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$$\begin{aligned}
\mathbf{43} &:= 1! + (1! + 2!) \times 2! + 3! \times 3! && = (1^1 + 1^1) \times (2^2 + 2^2 + 3^3) - 3^3 \\
&:= 1! \times 1! + 3! + 3! \times 2! + 4! && = -1^1 + (1^1 - 3^3 - 3^3) \times 2^2 + 4^4 \\
\\
\mathbf{44} &:= (3! \times 2! \times 2! - 2!) \times 2! && = 3^3 \times 2^2 - 2^2 \times 2^2 \times 2^2 \\
&:= 2! \times (2! + 2! + 3!) + 4! && = 2^2 - (2^2 + 2^2) \times 3^3 + 4^4 \\
&:= (-1! + 3! \times 2!) \times 2! \times 2! && = (1^1 \times 3^3 - 2^2 \times 2^2) \times 2^2 \\
\\
\mathbf{45} &:= -1! - 2! + (2! + 3!) \times 3! && = -1^1 - 2^2 - 2^2 + 3^3 + 3^3 \\
\\
\mathbf{46} &:= -2! + (2! + 3!) \times 3! && = -2^2 - 2^2 + 3^3 + 3^3 \\
&:= -1! \times 2! + (2! + 3!) \times 3! && = -1^1 \times 2^2 - 2^2 + 3^3 + 3^3 \\
\\
\mathbf{47} &:= -1! + (2! + 2!) \times 2! \times 3! && = 1^1 \times 2^2 \times 2^2 + 2^2 + 3^3 \\
\\
\mathbf{48} &:= (3! + 2!) \times (2! + 2! + 2!) && = (3^3 - 2^2 \times 2^2) \times 2^2 + 2^2 \\
&:= (1! + 1! + 2!) \times (3! + 3!) && = -1^1 - 1^1 - 2^2 + 3^3 + 3^3 \\
\\
\mathbf{49} &:= 1! + (2! + 3!) \times 3! && = -1^1 - 2^2 + 3^3 + 3^3 \\
\\
\mathbf{50} &:= 2! + 2! \times 3! + 3! \times 3! && = -2^2 + 2^2 \times 3^3 - 3^3 - 3^3 \\
&:= 1! + 1! + (2! + 3!) \times 3! && = -1^1 \times 1^1 \times 2^2 + 3^3 + 3^3 \\
&:= 2! + 3! - 3! + 4! + 4! && = -2^2 + 3^3 + 3^3 - 4^4 + 4^4 \\
\\
\mathbf{51} &:= 2! + (3! + 1!) \times (3! + 1!) && = -2^2 + 3^3 \times 1^1 + 3^3 + 1^1 \\
\\
\mathbf{52} &:= (1! + 1!) \times (2! + 3!) + 3! \times 3! && = -1^1 - 1^1 + 2^2 \times 3^3 - 3^3 - 3^3 \\
&:= -1! - 1! \times 1! + 3! + 4! + 4! && = -(1^1 + 1^1) \times (1^1 - 3^3) - 4^4 + 4^4 \\
\\
\mathbf{53} &:= -1! + (2! + 3!) \times 3! + 3! && = -1^1 + 2^2 \times 3^3 - 3^3 - 3^3 \\
\mathbf{54} &:= (2! + 3!) \times 3! + 3! && = 2^2 \times 3^3 - 3^3 - 3^3 \\
\mathbf{55} &:= 1! + (2! + 3!) \times 3! + 3! && = 1^1 + 2^2 \times 3^3 - 3^3 - 3^3 \\
\\
\mathbf{56} &:= (1! \times 1! + 3!) \times (3! + 2!) && = -1^1 - 1^1 + 3^3 + 3^3 + 2^2 \\
&:= -2! - 2! + 3! \times 3! + 4! && = 2^2 \times (2^2 - 3^3 - 3^3) + 4^4 \\
\\
\mathbf{57} &:= 1! + (1! + 3!) \times (3! + 2!) && = -1^1 \times 1^1 + 3^3 + 3^3 + 2^2
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{58} &:= (2!+3!)\times(2!+3!)-3! && = 2^2\times 3^3+2^2-3^3-3^3\\
&:= (2!+3!)\times(3!+1!)+2! && = 2^2-3^3-3^3\times(1^1-2^2)\\
&:= -2!+3!+3!+4!+4! && = 2^2+3^3+3^3+4^4-4^4\\
\\
\mathbf{59} &:= -1!+2!\times(-1!+3!)\times 3! && = (1^1+2^2)\times 1^1+3^3+3^3\\
\\
\mathbf{60} &:= ((2!+2!)\times 2!+2!)\times 3! && = 2^2\times(-2^2-2^2-2^2+3^3)\\
&:= (1!+2!+2!)\times 3!\times 2! && = ((1^1-2^2)\times 2^2+3^3)\times 2^2\\
\\
\mathbf{61} &:= 1!+(2!+2!+3!)\times 3! && = -1^1+2^2+2^2+3^3+3^3\\
\mathbf{62} &:= (-1!+3!)\times 2!\times 3!+2! && = 1^1\times 3^3+2^2+3^3+2^2\\
\mathbf{63} &:= -1!+(2!+3!)\times(2!+3!) && = 1^1+2^2+3^3+2^2+3^3\\
\\
\mathbf{64} &:= 2!\times(-2!-2!+3!\times 3!) && = 2^2\times 2^2\times 2^2+3^3-3^3\\
&:= (2!+2!)\times(-2!+4!)-4! && = 2^2\times 2^2\times 2^2+4^4-4^4\\
\\
\mathbf{65} &:= 1!+(2!+3!)\times(2!+3!) && = (-1^1\times 2^2+3^3)\times 2^2-3^3\\
\mathbf{66} &:= (1!+2!+2!+3!)\times 3! && = (-1^1+2^2)\times 2^2+3^3+3^3\\
\\
\mathbf{67} &:= -1!\times 1!+2!\times(-2!+3!\times 3!) && = 1^1+1^1-2^2\times(2^2-3^3)-3^3\\
&:= 1!+(1!+2!)\times 3!+2!\times 4! && = -1^1+(-1^1+2^2)\times 3^3\times 2^2-4^4\\
\\
\mathbf{68} &:= 2!\times(2!+2!+3!+4!) && = (2^2+2^2+2^2)\times 3^3-4^4\\
&:= 2!+3!+3!\times 3!+4! && = 2^2\times(3^3+3^3+3^3)-4^4\\
\\
\mathbf{69} &:= -1!-2!+2!\times 3!\times 3! && = -1^1+2^2\times 2^2+3^3+3^3\\
\mathbf{70} &:= 3!\times 3!\times 2!-2! && = 3^3+3^3+2^2\times 2^2\\
\mathbf{71} &:= 1!-2!+2!\times 3!\times 3! && = 1^1+2^2\times 2^2+3^3+3^3\\
\\
\mathbf{72} &:= (2!+2!+2!)\times 2!\times 3! && = -2^2+2^2\times(-2^2-2^2+3^3)\\
&:= (1!+2!)\times 3!\times 2!\times 2! && = (-1^1-2^2+3^3-2^2)\times 2^2\\
&:= (2!+2!)\times 2!\times 3!+4! && = (2^2+2^2)\times(2^2-3^3)+4^4\\
\\
\mathbf{73} &:= 1!\times 1!+(2!\times 3!)\times 3! && = (1^1+1^1)\times(-2^2+3^3)+3^3\\
\mathbf{74} &:= -2!+2!\times(2!+3!\times 3!) && = 2^2\times 2^2+2^2+3^3+3^3\\
\mathbf{75} &:= 1!\times 1!+2!+2!\times 3!\times 3! && = -1^1-1^1-2^2+2^2\times 3^3-3^3\\
\mathbf{76} &:= 1!\times 2!\times(2!+3!\times 3!) && = -1^1-2^2+2^2\times 3^3-3^3
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{77} &:= -1! + 2! \times 3! \times 3! + 3! && = -1^1 \times 2^2 + 3^3 + 3^3 + 3^3 \\
\mathbf{78} &:= (1! \times 2!) \times 3! \times 3! + 3! && = 1^1 - 2^2 + 3^3 + 3^3 + 3^3 \\
\mathbf{79} &:= 1! + (1! + 2! \times 3!) \times 3! && = -1^1 - 1^1 + 2^2 \times 3^3 - 3^3 \\
\mathbf{80} &:= 2! + 3! + 2! \times 4! + 4! && = -2^2 \times 3^3 \times 2^2 + 4^4 + 4^4 \\
\mathbf{81} &:= 1! + (1! + 3! + 3!) \times 3! + 2! && = -(1^1 + 1^1) \times 3^3 + 3^3 + 3^3 \times 2^2 \\
\mathbf{82} &:= ((1! + 3!) \times 3! - 1!) \times 2! && = 1^1 - 3^3 + 3^3 \times 1^1 \times 2^2 \\
\\
\mathbf{83} &:= -1! + (1! + 3!) \times (3! + 3!) && = 1^1 + 1^1 + 3^3 + 3^3 + 3^3 \\
&:= (1! + 3!) \times 2! \times 3! - 1! && = 1^1 - 3^3 + 2^2 \times 3^3 + 1^1 \\
\\
\mathbf{84} &:= (1! \times 2! + 3! + 3!) \times 3! && = -1^1 + 2^2 + 3^3 + 3^3 + 3^3 \\
\mathbf{85} &:= 1! + (2! + 2! \times 3!) \times 3! && = 1^1 \times 2^2 + 2^2 \times 3^3 - 3^3 \\
\mathbf{86} &:= (1! + (3! + 1!) \times 3!) \times 2! && = 1^1 - 3^3 + (1^1 + 3^3) \times 2^2 \\
\mathbf{87} &:= -1! + (-1! + 2! \times 3!) \times (2! + 3!) && = 1^1 + 1^1 + 2^2 - 3^3 + 2^2 \times 3^3 \\
\mathbf{88} &:= (-1! + 2! \times 3!) \times (2! + 3!) && = (1^1 + 2^2) \times (3^3 - 2^2) - 3^3 \\
\mathbf{90} &:= 1! + 1! + (2! - 3!) \times (2! - 4!) && = -(1^1 + 1^1 + 2^2) \times 3^3 - 2^2 + 4^4 \\
\mathbf{92} &:= 2! - 3! + 2! \times (4! + 4!) && = (-2^2 + 3^3) \times 2^2 - 4^4 + 4^4 \\
\mathbf{93} &:= (1! \times 1! + 2!) \times (1! + 3! + 4!) && = -1^1 - (1^1 + 2^2 + 1^1) \times 3^3 + 4^4 \\
\\
\mathbf{94} &:= -2! + (3! + 3!) \times 3! + 4! && = -2^2 \times 3^3 - 3^3 - 3^3 + 4^4 \\
&:= -1! - 1! + (-2! + 3!) \times 4! && = -(1^1 + 1^1 + 2^2) \times 3^3 + 4^4 \\
\\
\mathbf{95} &:= -1! \times 1! + 2! \times (2! + 3!) \times 3! && = -1^1 - 1^1 + 2^2 \times (2^2 + 3^3) - 3^3 \\
\\
\mathbf{96} &:= 2! \times 2! \times 2! \times 2! \times 3! && = 2^2 - 2^2 \times 2^2 + 2^2 \times 3^3 \\
&:= 1! \times 2! \times (2! + 3!) \times 3! && = (1^1 - 2^2) \times (2^2 - 3^3) + 3^3 \\
\\
\mathbf{97} &:= 1! + 2! \times (2! + 3!) \times 3! && = (1^1 \times 2^2) \times (2^2 + 3^3) - 3^3 \\
\mathbf{98} &:= (1! + 3!) \times (2! + 2! \times 3!) && = 1^1 - 3^3 + 2^2 \times (2^2 + 3^3) \\
\\
\mathbf{99} &:= 1! + (1! + 3!) \times (2! + 2! \times 3!) && = 1^1 + 1^1 - 3^3 + 2^2 \times (2^2 + 3^3) \\
\\
\mathbf{100} &:= 1! + 1! + 2! - (2! - 3!) \times 4! && = -1^1 - (1^1 + 2^2) \times (2^2 + 3^3) + 4^4 \\
\mathbf{101} &:= -1! - 3! - 2! \times 3! + 5! && = -(1^1 + 3^3) \times 2^2 \times 3^3 + 5^5 \\
\\
\mathbf{102} &:= (1! + 1! + 1!) \times (-2! + 3! \times 3!) && = (1^1 + 1^1) \times (1^1 - 2^2 + 3^3 + 3^3) \\
&:= -1! \times 1! \times 3! - 3! \times 2! + 5! && = 1^1 - (1^1 + 3^3) \times 3^3 \times 2^2 + 5^5
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$:= -1! - 1! + (-2! + 3!) \times (2! + 4!)$ $= 1^1 - (1^1 + 2^2) \times (3^3 + 2^2) + 4^4$

103 $:= 1! + (1! + (2! + 3!) \times 2!) \times 3!$ $= -((1^1 + 1^1) \times 2^2 - 3^3) \times 2^2 + 3^3$
103 $:= 1! \times 1! + 3! + 2! \times (4! + 4!)$ $= -1^1 - (1^1 - 3^3) \times 2^2 - 4^4 + 4^4$

104 $:= (3! + 2!) \times (3! \times 2! + 1!)$ $= -3^3 - 2^2 + 3^3 \times (2^2 + 1^1)$
$:= 3! + 2! + 2! \times (4! + 4!)$ $= 3^3 \times 2^2 - 2^2 + 4^4 - 4^4$
$:= -5! + 2! \times (5! - 2! - 3!)$ $= -5^5 - 2^2 + 5^5 + 2^2 \times 3^3$
$:= 3! + (4! + 4! + 1!) \times 2!$ $= (3^3 + 4^4 - 4^4 - 1^1) \times 2^2$

105 $:= (1! + 2!) \times (-1! + 3! \times 3!)$ $= (1^1 - 2^2) \times (1^1 - 3^3) + 3^3$

106 $:= -1! - 1! + (1! + 2!) \times 3! \times 3!$ $= -1^1 - 1^1 + (1^1 + 2^2) \times 3^3 - 3^3$
$:= -1! - 1! + 2! \times (3! + 4! + 4!)$ $= -1^1 - 1^1 + 2^2 \times 3^3 - 4^4 + 4^4$
$:= -1! - 1! + 2! \times (-3! + 5!) - 5!$ $= -1^1 - 1^1 + 2^2 \times 3^3 - 5^5 + 5^5$

107 $:= (3! + 3! + 3!) \times 3! - 1!$ $= 3^3 + 3^3 + 3^3 + 3^3 - 1^1$
$:= (1! + 2!) \times 3! \times 3! - 1!$ $= (1^1 + 2^2) \times 3^3 - 3^3 - 1^1$
$:= (-3! + 5!) \times 2! - 5! - 1!$ $= 3^3 \times (5^5 + 2^2 - 5^5) - 1^1$
$:= (4! + 4! + 3!) \times 2! - 1!$ $= (-4^4 + 4^4 + 3^3) \times 2^2 - 1^1$

108 $:= 3! \times (3! + 3! \times 2!)$ $= (3^3 + 3^3 - 3^3) \times 2^2$
$:= -5! + 2! \times (5! - 3!)$ $= (5^5 + 2^2 - 5^5) \times 3^3$
$:= 2! \times (3! + 4! + 4!)$ $= 2^2 \times 3^3 + 4^4 - 4^4$

109 $:= 1! + (1! + 2!) \times 3! \times 3!$ $= 1^1 + (1^1 + 2^2) \times 3^3 - 3^3$
$:= -(2! - 4!) \times 3! - 4! + 1!$ $= 2^2 \times (4^4 + 3^3 - 4^4) + 1^1$

110 $:= 1! + 1! + (2! \times 3! + 3!) \times 3!$ $= 1^1 + 1^1 + (2^2 + 3^3 - 3^3) \times 3^3$
$:= 1! + 1! + 2! \times (3! + 4! + 4!)$ $= 1^1 + 1^1 + 2^2 \times 3^3 + 4^4 - 4^4$
$:= (1! + 1!) \times (-2! + 5!) - 3! - 5!$ $= 1^1 + 1^1 + 2^2 \times (5^5 + 3^3 - 5^5)$

111 $:= (1! + 2!) \times (1! + 3! \times 3!)$ $= -(1^1 - 2^2) \times (1^1 + 3^3) + 3^3$

112 $:= (2! + 3! + 4! + 4!) \times 2!$ $= 2^2 \times 3^3 + 4^4 - 4^4 + 2^2$
$:= 2! \times 5! - 2! - 3! - 5!$ $= 2^2 + 5^5 + 2^2 \times 3^3 - 5^5$
$:= (4! - 1!) \times 3! - 2! - 4!$ $= 4^4 + (1^1 + 3^3) \times 2^2 - 4^4$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{113} &:= -1! + (1! + 2!) \times (2! + 3! \times 3!) && = (1^1 + 1^1) \times (2^2 \times 2^2 + 3^3) + 3^3 \\
&:= 1! - (1! + 3!) \times (2! + 3! - 4!) && = -(1^1 + 1^1 + 3^3) \times 2^2 - 3^3 + 4^4 \\
&:= -1! \times 1! - 3! + 2! \times 5! - 5! && = 1^1 + (1^1 + 3^3) \times 2^2 + 5^5 - 5^5 \\
\\
\mathbf{114} &:= (1! + 1! + 1!) \times (2! + 3! \times 3!) && = (1^1 + 1^1) \times (-1^1 + 2^2 + 3^3 + 3^3) \\
\\
\mathbf{115} &:= 1! + (1! + (1! + 2!) \times 3!) \times 3! && = -1^1 + (1^1 + 1^1) \times (2^2 + 3^3 + 3^3) \\
&:= (1! \times 1! - 2! + 3!) \times (-1! + 4!) && = -1^1 - (1^1 + 2^2) \times (3^3 + 1^1) + 4^4 \\
\\
\mathbf{116} &:= 2! \times (-2! + 2! \times (3! + 4!)) && = -2^2 \times (2^2 + 2^2 + 3^3) + 4^4 \\
\mathbf{117} &:= -1! \times 1! - 2! + (-1! + 3!) \times 4! && = 1^1 - (1^1 + 2^2) \times (1^1 + 3^3) + 4^4 \\
\mathbf{118} &:= -1! - 1! + (2! + 2!) \times (3! + 4!) && = (1^1 + 1^1 + 2^2) \times (2^2 - 3^3) + 4^4 \\
\\
\mathbf{119} &:= -1! + (-1! + 3!) \times 3! \times 2! \times 2! && = (1^1 \times 1^1) \times 3^3 + (3^3 - 2^2) \times 2^2 \\
&:= 1! \times 1! - 2! - (1! - 3!) \times 4! && = -1^1 - 1^1 - (2^2 + 1^1) \times 3^3 + 4^4 \\
\\
\mathbf{120} &:= ((1! + 2!) \times 3! + 2!) \times 3! && = -(1^1 - 2^2) \times (3^3 + 2^2) + 3^3 \\
&:= (1! \times 2! - 3! + 4!) \times 3! && = -1^1 - 2^2 \times 3^3 + 4^4 - 3^3 \\
\\
\mathbf{121} &:= 1! - (2! - 3!) \times (3! + 4!) && = -(1^1 \times 2^2) \times 3^3 - 3^3 + 4^4 \\
\mathbf{122} &:= (1! + 4! + 3! \times 3!) \times 2! && = 1^1 + 4^4 - 3^3 - 3^3 \times 2^2 \\
\mathbf{123} &:= 1! \times 1! + 2! + (3! - 1!) \times 4! && = 1^1 - (1^1 + 2^2) \times 3^3 + 1^1 + 4^4 \\
\\
\mathbf{124} &:= 3! \times 4! - 4! + 2! + 2! && = (3^3 + 4^4 - 4^4 + 2^2) \times 2^2 \\
&:= 2! \times 5! - 2! + 3! - 5! && = 2^2 \times (5^5 + 2^2 + 3^3 - 5^5) \\
\\
\mathbf{125} &:= -1! - 3! + (-2! + 4!) \times 3! && = (1^1 - 3^3) \times 2^2 + 4^4 - 3^3 \\
\mathbf{126} &:= 1! \times 3! \times (-1! - 2! + 4!) && = (1^1 - 3^3) \times (1^1 + 2^2) + 4^4 \\
\\
\mathbf{127} &:= 1! + (1! + 2!) \times (3! \times 3! + 3!) && = (1^1 + 1^1) \times (-2^2 + 3^3 + 3^3) + 3^3 \\
&:= 1! \times 1! - 3! \times (1! + 2! - 4!) && = 1^1 + (1^1 - 3^3) \times (1^1 + 2^2) + 4^4 \\
\\
\mathbf{128} &:= (2! + 2!) \times (2! + 3! + 4!) && = -2^2 - 2^2 \times (2^2 + 3^3) + 4^4 \\
&:= (4! - 1! - 2!) \times 3! + 2! && = 4^4 - (1^1 + 2^2 + 3^3) \times 2^2 \\
\\
\mathbf{129} &:= (1! + (1! + 3!) \times 3!) \times (1! + 2!) && = (-((1^1 + 1^1) - 3^3) + ((3^3 - 1^1) \times 2^2))
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$:= -1! - (1! + 3!) \times 2! + 3! \times 4!$ $= (1^1 + 1^1 - 3^3) \times 2^2 - 3^3 + 4^4$

130 $:= (-1! + (-1! + 2! \times 3!) \times 3!) \times 2!$ $= -1^1 \times 1^1 - 2^2 + 3^3 + 3^3 \times 2^2$
$:= -1! \times 1! \times 2! + 3! \times (-2! + 4!)$ $= -1^1 - 1^1 - (2^2 + 3^3) \times 2^2 + 4^4$

131 $:= 1! - 2! - 3! \times (2! - 4!)$ $= -1^1 - (2^2 + 3^3) \times 2^2 + 4^4$

132 $:= (-1! + 2! \times 3!) \times 2! \times 3!$ $= 1^1 - 2^2 + 3^3 + 2^2 \times 3^3$
$:= (-2! - 2! + 4! + 2!) \times 3!$ $= -2^2 \times 2^2 + 4^4 - 2^2 \times 3^3$
$:= (1! - 2!) \times 3! \times (2! - 4!)$ $= -(1^1 \times 2^2 + 3^3) \times 2^2 + 4^4$

133 $:= -1! + 2! + 3! \times (-2! + 4!)$ $= 1^1 - (2^2 + 3^3) \times 2^2 + 4^4$

134 $:= 1! + 1! + (2! + 4!) \times 3! - 4!$ $= -1^1 + (1^1 + 2^2) \times (4^4 + 3^3 - 4^4)$
$:= 1! + 1! + 2! \times (3! + 5!) - 5!$ $= -1^1 + (1^1 + 2^2) \times 3^3 - 5^5 + 5^5$

136 $:= -(2! + 2!) \times 2! + 3! \times 4!$ $= 2^2 - 2^2 \times (2^2 + 3^3) + 4^4$
$:= -2! + 3! \times (1! - 2! + 4!)$ $= -(2^2 + 3^3 - 1^1) \times 2^2 + 4^4$

137 $:= -1! + (-1! + (2! + 2!) \times 3!) \times 3!$ $= -1^1 - 1^1 + 2^2 + 2^2 \times 3^3 + 3^3$
138 $:= (-1! + (2! + 2!) \times 3!) \times 3!$ $= -1^1 + 2^2 + 2^2 \times 3^3 + 3^3$

139 $:= 1! - (1! - (2! + 2!) \times 3!) \times 3!$ $= 1^1 \times 1^1 \times 2^2 + 2^2 \times 3^3 + 3^3$
$:= 1! \times 1! + 3! \times (1! - 2! + 4!)$ $= -1^1 - (1^1 + 3^3 + 1^1) \times 2^2 + 4^4$

140 $:= (2! + 2!) \times (3! \times 3! - 1!)$ $= 2^2 + 2^2 \times 3^3 + 3^3 + 1^1$
$:= 4! \times 3! \times 1! - 2! - 2!$ $= 4^4 - (3^3 + 1^1) \times 2^2 - 2^2$

141 $:= 1! - 2! - 2! + 3! \times 4!$ $= (1^1 + 2^2) \times (2^2 - 3^3) + 4^4$
142 $:= 2! \times (-1! + 2! \times 3! \times 3!)$ $= (2^2 + 1^1) \times (-2^2 + 3^3) + 3^3$

143 $:= 1! \times 4! \times 3! + 1! - 2!$ $= -1^1 + 4^4 - (3^3 + 1^1) \times 2^2$
$:= -1! - 2! + 2! + 3! \times 4!$ $= -1^1 - 2^2 - 2^2 \times 3^3 + 4^4$

144 $:= (-2! + 2! + 3!) \times 4!$ $= -2^2 - 2^2 \times 3^3 + 4^4$
145 $:= 1! + 2! - 2! + 3! \times 4!$ $= 1^1 - 2^2 - 2^2 \times 3^3 + 4^4$

146 $:= 2! + 2! \times 3! \times (3! + 3!)$ $= -2^2 \times (2^2 - 3^3) + 3^3 + 3^3$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$:= 1! \times 1! \times 2! + 3! \times 4!$ $= -1^1 - 1^1 - 2^2 \times 3^3 + 4^4$

148 $:= -1! \times 2! + 3! + 3! \times 4!$ $= -(1^1 + 2^2) \times 3^3 + 3^3 + 4^4$

149 $:= 1! + 2! + 2! + 3! \times 4!$ $= (-1^1 + 2^2 \times 2^2) \times 3^3 - 4^4$

150 $:= (1! + (2! + 2!) \times 3!) \times 3!$ $= (1^1 - 2^2) \times (2^2 - 3^3 - 3^3)$

$:= (4! - 1! + 2!) \times 3! \times 1!$ $= 4^4 + 1^1 - 2^2 \times 3^3 + 1^1$

151 $:= -(1! - 4! - 2!) \times 3! + 1!$ $= -1^1 + 4^4 + 2^2 \times (-3^3 + 1^1)$

152 $:= (2! + 2!) \times (2! + 3! \times 3!)$ $= 2^2 \times (-2^2 \times 2^2 + 3^3 + 3^3)$

$:= 1! \times 2! + 3! \times (1! + 4!)$ $= (1^1 \times 2^2) \times (-3^3 + 1^1) + 4^4$

153 $:= -1! - 2! + 3! \times (2! + 4!)$ $= 1^1 + 2^2 - 3^3 \times 2^2 + 4^4$

154 $:= (-1! + (1! + 3! + 3!) \times 3!) \times 2!$ $= (1^1 + 1^1) \times (3^3 + 3^3 + 3^3 - 2^2)$

$:= -1! \times 1! \times 2! + 3! \times (2! + 4!)$ $= 1^1 + 1^1 + 2^2 - 3^3 \times 2^2 + 4^4$

155 $:= -1! + (1! + 2! \times 3!) \times 2! \times 3!$ $= (1^1 \times 1^1 + 2^2 + 3^3) \times 2^2 + 3^3$

$:= -1! - 1! + 1! + 3! \times (2! + 4!)$ $= -1^1 + (1^1 + 1^1 - 3^3) \times 2^2 + 4^4$

$:= 1! \times 1! - 2! + 3! \times 3! + 5!$ $= -(1^1 + 1^1 + 2^2 \times 3^3) \times 3^3 + 5^5$

156 $:= (2! + 2! + 4! - 2!) \times 3!$ $= 2^2 + 2^2 + 4^4 - 2^2 \times 3^3$

$:= 1! \times 1! \times 3! \times (2! + 4!)$ $= (1^1 + 1^1 - 3^3) \times 2^2 + 4^4$

157 $:= 1! + (1! + 2! \times 3!) \times 2! \times 3!$ $= (1^1 + 1^1) \times 2^2 \times (3^3 - 2^2) - 3^3$

$:= 1! \times 1! + 3! \times 1! \times (2! + 4!)$ $= 1^1 + (1^1 - 3^3 + 1^1) \times 2^2 + 4^4$

158 $:= (1! + (1! + 3! + 3!) \times 3!) \times 2!$ $= (1^1 + 1^1) \times (3^3 + 3^3 + 3^3) - 2^2$

159 $:= 1! \times 1! + 2! + 3! \times (2! + 4!)$ $= -1^1 - (1^1 - 2^2 + 3^3) \times 2^2 + 4^4$

160 $:= 2! + 2 + 3! \times (2! + 4!)$ $= (-2^2 + 2^2 \times 3^3) \times 2^2 - 4^4$

$:= -2! + 3! \times (1! + 2! + 4!)$ $= (2^2 - 3^3 - 1^1) \times 2^2 + 4^4$

161 $:= -1! + (1! + 2!) \times (3! + 2! \times 4!)$ $= 1^1 - (1^1 - 2^2 + 3^3) \times 2^2 + 4^4$

162 $:= (-1! + (((1! + 3!) \times 2!) \times 2!)) \times 3!$ $= -(1^1 + 1^1) \times 3^3 + (2^2 + 2^2) \times 3^3$

$:= (1! \times 1! + 2!) \times (3! + 2! \times 4!)$ $= -1^1 - 1^1 + (2^2 - 3^3) \times 2^2 + 4^4$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{163} &:= 1! + (1! + 2!) \times (3! + 2! \times 4!) && = (1^1 \times 1^1 - 2^2) \times (3^3 + 2^2) + 4^4 \\
\mathbf{164} &:= (1! + 4! + 2!) \times 3! + 2! && = 1^1 \times 4^4 + (2^2 - 3^3) \times 2^2 \\
\mathbf{165} &:= 1! + (1! + 4! + 2!) \times 3! + 2! && = 1^1 \times 1^1 + 4^4 + (2^2 - 3^3) \times 2^2 \\
\\
\mathbf{166} &:= (-1! + (1! + 3!) \times 3! \times 2!) \times 2! && = (1^1 + 1^1) \times 3^3 + 3^3 \times 2^2 + 2^2 \\
&:= -1! - 1! + 3! \times (2! + 2! + 4!) && = 1^1 + 1^1 - (3^3 - 2^2) \times 2^2 + 4^4 \\
\\
\mathbf{167} &:= -1! + (1! + 3!) \times 2! \times (3! + 3!) && = 1^1 + (1^1 + 3^3) \times 2^2 + 3^3 + 3^3 \\
\mathbf{167} &:= -1! + (1! + 2! \times 3! - 3!) \times 4! && = -(1^1 + 1^1) \times (2^2 + 3^3) - 3^3 + 4^4 \\
\\
\mathbf{168} &:= (2! + 2!) \times (-3! + 2! \times 4!) && = 2^2 \times (2^2 - 3^3) + 2^2 + 4^4 \\
&:= (1! + 2! + 3! - 2!) \times 4! && = (1^1 + 2^2 - 3^3) \times 2^2 + 4^4 \\
\\
\mathbf{169} &:= 1! \times 1! + 3! \times (2! + 2! + 4!) && = 1^1 + (1^1 - 3^3 + 2^2) \times 2^2 + 4^4 \\
\\
\mathbf{170} &:= (1! + (1! + 3!) \times 3! \times 2!) \times 2! && = (1^1 + 1^1) \times (-3^3 + 3^3 \times 2^2 + 2^2) \\
&:= 1! + 1! + 3! \times (2! + 2! + 4!) && = -(1^1 + 1^1) \times (3^3 + 2^2 \times 2^2) + 4^4 \\
\\
\mathbf{171} &:= 1! \times 1! + 2! + (1! + 3!) \times 4! && = -1^1 + (1^1 - 2^2) \times (1^1 + 3^3) + 4^4 \\
\mathbf{172} &:= 2! + 2! + (3! + 1!) \times 4! && = 2^2 \times (2^2 \times 3^3 - 1^1) - 4^4 \\
\\
\mathbf{173} &:= -1! \times 1! - 3! + 3! \times (3! + 4!) && = -1^1 - 1^1 - 3^3 - 3^3 - 3^3 + 4^4 \\
&:= -1! + (1! - 2! + 3! + 4!) \times 3! && = -1^1 - 1^1 - 2^2 \times 3^3 + 4^4 + 3^3 \\
\\
\mathbf{174} &:= (1! - 2! + 3! + 4!) \times 3! && = -1^1 - 2^2 \times 3^3 + 4^4 + 3^3 \\
\\
\mathbf{175} &:= (3! + 4!) \times 3! - 3! + 1! && = -3^3 + 4^4 - 3^3 - 3^3 \times 1^1 \\
&:= (-1! + 2! + 3!) \times (1! + 4!) && = (1^1 - 2^2) \times 3^3 \times 1^1 + 4^4 \\
\\
\mathbf{176} &:= (2! + 2!) \times 2! \times (-2! + 4!) && = -(2^2 \times 2^2 + 2^2) \times 2^2 + 4^4 \\
&:= 2! + 3! + (1! + 3!) \times 4! && = -2^2 \times 3^3 + 1^1 + 3^3 + 4^4 \\
\\
\mathbf{177} &:= 1! + (4! - 2!) \times (3! + 2!) && = 1^1 - 4^4 + 2^2 \times 3^3 \times 2^2 \\
\\
\mathbf{180} &:= (2! + 2! + 2!) \times (3! + 4!) && = 2^2 \times (2^2 + 2^2 - 3^3) + 4^4 \\
&:= (2! + 1!) \times 2! \times (3! + 4!) && = 2^2 \times (1^1 + 2^2 \times 3^3) - 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{181} &:= -1! + (1! + 3!) \times (2! \times 1! + 4!) && = (1^1 + 1^1 - 3^3) \times (2^2 - 1^1) + 4^4 \\
&:= 1! - (1! - 3!) \times 2! \times 3! + 5! && = -1^1 - (1^1 + 3^3 \times 2^2) \times 3^3 + 5^5 \\
\\
\mathbf{183} &:= 1! \times 1! + 2! + 3! \times (3! + 4!) && = (1^1 + 1^1) \times (2^2 - 3^3) - 3^3 + 4^4 \\
\\
\mathbf{184} &:= (1! + 1! + 2!) \times (-2! + 2! \times 4!) && = -(1^1 + 1^1 + 2^2 \times 2^2) \times 2^2 + 4^4 \\
&:= (1! + 1! - 3!) \times (2! - 2! \times 4!) && = (1^1 + 1^1 + 3^3 \times 2^2) \times 2^2 - 4^4 \\
\\
\mathbf{186} &:= 2! \times (-2! + 3!) \times 4! - 3! && = -2^2 \times 2^2 - 3^3 + 4^4 - 3^3 \\
\\
\mathbf{188} &:= 2! \times (-2! + (2! + 2!) \times 4!) && = -2^2 \times 2^2 \times 2^2 - 2^2 + 4^4 \\
&:= (2! + 2!) \times (-1! + 2! \times 4!) && = -(2^2 \times 2^2 + 1^1) \times 2^2 + 4^4 \\
\\
\mathbf{189} &:= -1! + (-1! + 3!) \times (2! + 3! \times 3!) && = (1^1 + 1^1) \times 3^3 + 2^2 \times 3^3 + 3^3 \\
\mathbf{190} &:= (-1! + 3!) \times (3! \times 3! + 2!) && = 1^1 - 3^3 + (3^3 + 3^3) \times 2^2 \\
\mathbf{191} &:= -1! + (2! + 2!) \times 2! \times 4! && = -1^1 - 2^2 \times 2^2 \times 2^2 + 4^4 \\
\mathbf{192} &:= (2! + 2!) \times 2! \times 4! && = -2^2 \times 2^2 \times 2^2 + 4^4 \\
\mathbf{193} &:= 1! + (2! + 2!) \times 2! \times 4! && = 1^1 - (2^2 \times 2^2) \times 2^2 + 4^4 \\
\\
\mathbf{194} &:= (2! + 3! + 4!) \times 3! + 2! && = -2^2 - 3^3 + 4^4 - 3^3 - 2^2 \\
&:= 1! + 1! + (2! + 3!) \times 4! && = -(1^1 + 1^1) \times (2^2 + 3^3) + 4^4 \\
\\
\mathbf{195} &:= 1! + 1! + 1! + (2! + 3!) \times 4! && = 1^1 - (1^1 + 1^1) \times (2^2 + 3^3) + 4^4 \\
\\
\mathbf{196} &:= (2! + (2! + 2!) \times 4!) \times 2! && = -2^2 \times 2^2 \times 2^2 + 4^4 + 2^2 \\
&:= (4! \times 2! + 1!) \times 2! \times 2! && = 4^4 + 2^2 \times (1^1 - 2^2 \times 2^2) \\
\\
\mathbf{197} &:= (2! + 3!) \times 4! + 3! - 1! && = -2^2 - 3^3 + 4^4 - 3^3 - 1^1 \\
\mathbf{198} &:= (2! + 3!) \times 4! + 3! && = -2^2 - 3^3 + 4^4 - 3^3 \\
\mathbf{199} &:= 1! + (2! + 3!) \times 4! + 3! && = 1^1 - 2^2 - 3^3 + 4^4 - 3^3 \\
\mathbf{200} &:= (1! + 1! + 3!) \times (1! + 4!) && = -(1^1 + 1^1) \times (3^3 + 1^1) + 4^4 \\
\mathbf{201} &:= 1! + (1! + 1! + 3!) \times (1! + 4!) && = -(1^1 + 1^1) \times 1^1 \times 3^3 - 1^1 + 4^4 \\
\mathbf{202} &:= (2! + 3!) \times (2! + 4!) - 3! && = -2^2 - 3^3 + 2^2 + 4^4 - 3^3 \\
\mathbf{203} &:= (-1! + 4! + 3!) \times (1! + 3!) && = 1^1 + 4^4 - 3^3 \times 1^1 - 3^3 \\
\mathbf{204} &:= (1! + 1!) \times 3! + (2! + 3!) \times 4! && = -1^1 - 1^1 - 3^3 + 2^2 - 3^3 + 4^4 \\
\mathbf{205} &:= 1! - 3! \times 3! + 2! \times 5! && = -(1^1 + 3^3 \times 3^3) \times 2^2 + 5^5 \\
\mathbf{206} &:= (1! + 4!) \times (2! + 3!) + 3! && = 1^1 \times 4^4 + 2^2 - 3^3 - 3^3
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{207} &:= 1! + (1! + 4!) \times (3! + 2!) + 3! && = 1^1 \times 1^1 + 4^4 - 3^3 + 2^2 - 3^3 \\
&:= 1! + (1! + 5!) \times 2! - 3! \times 3! && = -(1^1 + 1^1) + 5^5 - (2^2 \times 3^3) \times 3^3 \\
\\
\mathbf{208} &:= (2! + 2!) \times 2! \times (2! + 4!) && = -(2^2 + 2^2 + 2^2) \times 2^2 + 4^4 \\
\\
\mathbf{209} &:= 1! + (1! + 1! + 3!) \times (2! + 4!) && = -1^1 - (1^1 + 1^1) \times (3^3 - 2^2) + 4^4 \\
&:= -1! + (1! - 3!) \times 3! + 2! \times 5! && = -(1^1 \times 1^1) \times 3^3 \times 3^3 \times 2^2 + 5^5 \\
\\
\mathbf{210} &:= (1! - 3!) \times 3! + 2! \times 5! && = 1^1 - 3^3 \times 3^3 \times 2^2 + 5^5 \\
\mathbf{211} &:= 1! + (1! - 3!) \times 3! + 2! \times 5! && = 1^1 + 1^1 - (3^3 \times 3^3) \times 2^2 + 5^5 \\
\mathbf{212} &:= (1! + 1!) \times (-(3! + 3!) - 2! + 5!) && = -1^1 + (1^1 - 3^3 \times 3^3) \times 2^2 + 5^5 \\
\mathbf{213} &:= -1! + (-1! + (4! - 3!) \times 3!) \times 2! && = -(1^1 + 1^1) \times 4^4 + 3^3 \times 3^3 - 2^2 \\
\mathbf{214} &:= -2! + (2! + 1! + 3!) \times 4! && = -2^2 \times 2^2 + 1^1 - 3^3 + 4^4 \\
\\
\mathbf{215} &:= -1! + (1! + 2!) \times 2! \times 3! \times 3! && = -1^1 + (1^1 + 2^2 + 2^2) \times 3^3 - 3^3 \\
&:= -1! + (1! + (2! + 2!) \times 2!) \times 4! && = -1^1 - (1^1 + 2^2) \times (2^2 + 2^2) + 4^4 \\
\\
\mathbf{216} &:= (2! + 2! + 2!) \times 3! \times 3! && = (2^2 + 2^2 - 2^2) \times (3^3 + 3^3) \\
&:= (1! + 2!) \times 2! \times 3! \times 3! && = (1^1 + 2^2 + 2^2) \times 3^3 - 3^3 \\
&:= (2! + 2! + 3!) \times 4! - 4! && = (2^2 + 2^2) \times 3^3 + 4^4 - 4^4 \\
&:= -(2! + 2!) \times 3! + 5! + 5! && = (2^2 + 2^2) \times 3^3 + 5^5 - 5^5 \\
\\
\mathbf{217} &:= 1! + (1! + 2!) \times 2! \times 3! \times 3! && = 1^1 + (1^1 + 2^2 + 2^2) \times 3^3 - 3^3 \\
&:= 1! + (1! + (2! + 2!) \times 2!) \times 4! && = 1^1 - (1^1 + 2^2) \times (2^2 + 2^2) + 4^4 \\
\\
\mathbf{218} &:= 2! - 2! \times 3! \times (3! - 4!) && = 2^2 \times 2^2 - 3^3 - 3^3 + 4^4 \\
\mathbf{219} &:= 1! + (1! + 2! + 3!) \times 4! + 2! && = -1^1 - 1^1 - 2^2 - 3^3 + 4^4 - 2^2 \\
\mathbf{220} &:= (1! - 3!) \times 2! \times (2! - 4!) && = -1^1 - 3^3 - 2^2 - 2^2 + 4^4 \\
\mathbf{221} &:= -1! + (1! + 4! + 2! \times 3!) \times 3! && = -(1^1 + 1^1) \times 4^4 + 2^2 + 3^3 \times 3^3 \\
\mathbf{222} &:= (1! + (1! - 3!) \times (2! - 4!)) \times 2! && = 1^1 \times 1^1 - 3^3 - 2^2 + 4^4 - 2^2 \\
\mathbf{224} &:= -1! + (1! + 2! + 3!) \times (1! + 4!) && = -1^1 - 1^1 - 2^2 - 3^3 + 1^1 + 4^4 \\
\mathbf{225} &:= (1! + 2! + 3!) \times (1! + 4!) && = -1^1 - 2^2 - 3^3 + 1^1 + 4^4 \\
\mathbf{226} &:= 1! + (1! + 2! + 3!) \times (1! + 4!) && = 1^1 + 1^1 - 2^2 - 3^3 - 1^1 + 4^4 \\
\mathbf{227} &:= -1! + (1! + 3!) \times 3! \times 3! - 4! && = -1^1 - 1^1 - 3^3 - 3^3 + 3^3 + 4^4 \\
\mathbf{228} &:= (1! + 3!) \times 3! \times 3! - 4! && = -1^1 - 3^3 - 3^3 + 3^3 + 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{229} &:= 1! + (1! + 3!) \times 3! \times 3! - 4! && = (-1^1 \times 1^1 - 3^3 + 3^3) \times 3^3 + 4^4 \\
&:= -1! + (1! - 3!) \times (2! - 2! \times 4!) && = -(1^1 \times 1^1) \times 3^3 - 2^2 + 2^2 + 4^4 \\
\mathbf{230} &:= (1! - 3!) \times (2! - 2! \times 4!) && = 1^1 - 3^3 + 2^2 - 2^2 + 4^4 \\
\mathbf{234} &:= (1! + 1! + 1! + 3!) \times (2! + 4!) && = 1^1 + 1^1 - 1^1 - 3^3 + 2^2 + 4^4 \\
\mathbf{235} &:= (1! - 2! \times 4!) \times (1! - 3!) && = 1^1 + 2^2 + 4^4 + 1^1 - 3^3 \\
\mathbf{236} &:= ((3! - 1!) \times 4! - 2!) \times 2! && = -3^3 - 1^1 + 4^4 + 2^2 + 2^2 \\
&:= (5! - 3! + 1!) \times 2! + 3! && = 5^5 + 3^3 \times (1^1 - 2^2 \times 3^3) \\
\mathbf{237} &:= 1! - ((1! - 3!) \times 4! + 2!) \times 2! && = -(1^1 \times 1^1) \times 3^3 + 4^4 + 2^2 + 2^2 \\
\mathbf{238} &:= (-1! + 3!) \times 4! \times 2! - 2! && = 1^1 - 3^3 + 4^4 + 2^2 + 2^2 \\
\mathbf{239} &:= -1! + (1! + 2! + 2!) \times 2! \times 4! && = -1^1 - (1^1 + 2^2) \times 2^2 + 2^2 + 4^4 \\
&:= -1! + (1! + 1! + 2! + 3!) \times 4! && = (1^1 + 1^1) \times (1^1 + 2^2) - 3^3 + 4^4 \\
\mathbf{240} &:= (1! + 2! + 2!) \times 2! \times 4! && = -(1^1 + 2^2) \times 2^2 + 2^2 + 4^4 \\
&:= (2! + 2!) \times 2! \times (3! + 4!) && = 2^2 \times 2^2 \times (2^2 + 3^3) - 4^4 \\
\mathbf{241} &:= 1! + (2! + 2! + 3!) \times 4! && = (-1^1 + 2^2) \times 2^2 - 3^3 + 4^4 \\
\mathbf{242} &:= 1! + 1! + (3! + 4!) \times (2! + 3!) && = (1^1 + 1^1) \times (-3^3 + 4^4 - 2^2 \times 3^3) \\
\mathbf{243} &:= 1! + (1! - 3! \times 2!) \times (2! - 4!) && = -1^1 - 1^1 - 3^3 + 2^2 \times 2^2 + 4^4 \\
\mathbf{244} &:= ((3! - 1!) \times 4! + 2!) \times 2! && = -3^3 - 1^1 + 4^4 + 2^2 \times 2^2 \\
\mathbf{245} &:= 1! - ((1! - 3!) \times 4! - 2!) \times 2! && = -1^1 \times 1^1 \times 3^3 + 4^4 + 2^2 \times 2^2 \\
\mathbf{246} &:= (1! + (1! + 3!) \times 3! - 2!) \times 3! && = -1^1 + (1^1 + 3^3 + 3^3) \times 2^2 + 3^3 \\
&:= (1! - (1! - 3!) \times 4! + 2!) \times 2! && = 1^1 \times 1^1 - 3^3 + 4^4 + 2^2 \times 2^2 \\
\mathbf{248} &:= (1! - (1! - 3!) \times 3!) \times (2! + 3!) && = 1^1 + (1^1 + 3^3 + 3^3) \times 2^2 + 3^3 \\
\mathbf{250} &:= -1! - 1! + 3! \times (-3! + 2! \times 4!) && = -1^1 - 1^1 + 3^3 - 3^3 - 2^2 + 4^4 \\
\mathbf{251} &:= -1! + 3! \times (-3! + 2! \times 4!) && = -1^1 - 3^3 + 3^3 - 2^2 + 4^4 \\
\mathbf{252} &:= 3! \times (-3! + 2! \times 4!) && = 3^3 - 3^3 - 2^2 + 4^4 \\
\mathbf{253} &:= (2! \times 4! - 3!) \times 3! + 1! && = -2^2 + 4^4 - 3^3 + 3^3 + 1^1 \\
\mathbf{254} &:= 1! + (1! - 4!) \times (1! - 3! - 3!) && = (-1^1 - 1^1 + 4^4) \times 1^1 - 3^3 + 3^3 \\
&:= 1! + 1! + (2! \times 4! - 3!) \times 3! && = 1^1 + 1^1 - 2^2 + 4^4 + 3^3 - 3^3
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{256} := (2! + 3! + 4!) \times (2! + 3!) \qquad = 2^2 + 3^3 + 4^4 - 2^2 - 3^3$$
$$\mathbf{257} := -1! + (1! - 3! + 4! + 4!) \times 3! \qquad = 1^1 + (1^1 + 3^3) \times 4^4 - 4^4 \times 3^3$$
$$\mathbf{258} := (1! + (1! + 1!) \times 4! - 3!) \times 3! \qquad = (1^1 + 1^1) \times 1^1 + 4^4 + 3^3 - 3^3$$
$$\mathbf{259} := 1! + (1! + 2! \times 4! - 3!) \times 3! \qquad = -1^1 \times 1^1 + 2^2 + 4^4 - 3^3 + 3^3$$

$$\mathbf{260} := (-1! - 1! + 3! + 3!) \times (2! + 4!) \qquad = (1^1 \times 1^1 + 3^3 - 3^3) \times 2^2 + 4^4$$
$$:= -1! - 1! - 2! + 4! + 5! + 5! \qquad = 1^1 \times 1^1 \times 2^2 + 4^4 + 5^5 - 5^5$$

$$\mathbf{261} := -1! - 2! + 4! + 5! + 5! \qquad = 1^1 + 2^2 + 4^4 + 5^5 - 5^5$$

$$\mathbf{262} := -1! - 1! + (4! - 2!) \times (3! + 3!) \qquad = 1^1 + 1^1 + 4^4 + 2^2 + 3^3 - 3^3$$
$$:= -1! \times 1! \times 2! + 4! + 5! + 5! \qquad = 1^1 + 1^1 + 2^2 + 4^4 + 5^5 - 5^5$$

$$\mathbf{263} := -1! + 2! \times (-2! + 4!) \times 3! \qquad = -(1^1 + 2^2) \times 2^2 + 4^4 + 3^3$$

$$\mathbf{264} := 2! \times (-2! \times 3! + 3! \times 4!) \qquad = 2^2 + 2^2 + 3^3 - 3^3 + 4^4$$
$$:= 2! + 4! - 2! + 5! + 5! \qquad = 2^2 + 4^4 + 2^2 + 5^5 - 5^5$$

$$\mathbf{265} := 1! + (1! + 2! + 2! + 3!) \times 4! \qquad = -1^1 - 1^1 - 2^2 \times 2^2 + 3^3 + 4^4$$
$$\mathbf{266} := (1! + 3! \times (4! - 2!)) \times 2! \qquad = -1^1 + 3^3 + 4^4 - 2^2 \times 2^2$$
$$\mathbf{267} := 1! + (1! + 3! \times (4! - 2!)) \times 2! \qquad = 1^1 \times 1^1 \times 3^3 + 4^4 - 2^2 \times 2^2$$
$$\mathbf{268} := (1! + 1!) \times (2! - (2! - 4!) \times 3!) \qquad = 1^1 \times 1^1 - 2^2 \times 2^2 + 4^4 + 3^3$$
$$\mathbf{269} := -1! + (1! + 2! + 3!) \times (4! + 3!) \qquad = (1^1 + 1^1) \times (-2^2 \times 3^3 + 4^4) - 3^3$$
$$\mathbf{270} := (-1! \times 1! - 2! + 2! \times 4!) \times 3! \qquad = -1^1 + (1^1 - 2^2) \times 2^2 + 4^4 + 3^3$$

$$\mathbf{271} := 1! - (1! - 3!) \times (3! + 4! + 4!) \qquad = (1^1 + 1^1 + 3^3) \times 3^3 - 4^4 - 4^4$$
$$:= 1! - (1! + 2! - 2! \times 4!) \times 3! \qquad = -(1^1 + 1^1) \times 2^2 - 2^2 + 4^4 + 3^3$$

$$\mathbf{272} := 2! \times (-2! - 3! + 3! \times 4!) \qquad = 2^2 \times 2^2 + 3^3 - 3^3 + 4^4$$
$$\mathbf{273} := 1! - ((1! - 4!) \times 3! + 2!) \times 2! \qquad = -1^1 - 1^1 + 4^4 + 3^3 - 2^2 - 2^2$$
$$\mathbf{274} := 2! \times 3! \times (4! - 1!) - 2! \qquad = -2^2 + 3^3 + 4^4 - 1^1 - 2^2$$
$$\mathbf{275} := -1! + (-2! + 2! \times 4!) \times 3! \qquad = -1^1 \times 2^2 - 2^2 + 4^4 + 3^3$$
$$\mathbf{276} := (-1! \times 2! + 2! \times 4!) \times 3! \qquad = 1^1 - 2^2 - 2^2 + 4^4 + 3^3$$
$$\mathbf{277} := 1! + 2! \times 3! \times (4! - 1!) \qquad = -1^1 - 2^2 + 3^3 + 4^4 - 1^1$$
$$\mathbf{278} := (1! + 3! \times (4! - 1!)) \times 2! \qquad = 1^1 \times 3^3 + 4^4 - 1^1 - 2^2$$
$$\mathbf{279} := 1! + (1! - 3! + 3! \times 4!) \times 2! \qquad = (1^1 + 1^1) \times 3^3 - 3^3 + 4^4 - 2^2$$
$$\mathbf{280} := (1! + 1!) \times (2! + 3! \times (4! - 1!)) \qquad = 1^1 + 1^1 - 2^2 + 3^3 + 4^4 - 1^1$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{281} := (-1! + 2! \times 4!) \times 3! - 1! \qquad = 1^1 - 2^2 + 4^4 + 3^3 + 1^1$$

$$\mathbf{282} := -3! + (3! + 3!) \times 1! \times 4! \qquad = 3^3 + 3^3 - 3^3 - 1^1 + 4^4$$
$$:= (2! \times 4! - 2! + 1!) \times 3! \qquad = 2^2 + 4^4 - 2^2 - 1^1 + 3^3$$

$$\mathbf{283} := 1! - 3! + (3! + 3!) \times 4! \qquad = (1^1 + 3^3 - 3^3) \times 3^3 + 4^4$$
$$:= -1! + 2! \times (-2! + 3! \times 4!) \qquad = (1^1 + 2^2 - 2^2) \times 3^3 + 4^4$$

$$\mathbf{284} := 2! - 3! + 3! \times 2! \times 4! \qquad = (2^2 \times 3^3 + 3^3) \times 2^2 - 4^4$$
$$:= (1! \times 3! \times 4! - 2!) \times 2! \qquad = 1^1 + 3^3 + 4^4 + 2^2 - 2^2$$

$$\mathbf{285} := -1! \times 1! - 2! + 2! \times 3! \times 4! \qquad = 1^1 + 1^1 + 2^2 - 2^2 + 3^3 + 4^4$$

$$\mathbf{286} := (4! \times 3! - 1!) \times (1! + 1!) \qquad = 4^4 + 3^3 + 1^1 + 1^1 + 1^1$$
$$:= -1! - 1! + 2! \times 3! \times 4! \qquad = -1^1 \times 1^1 + 2^2 + 3^3 + 4^4$$

$$\mathbf{290} := 1! \times 2! + 2! \times 3! \times 4! \qquad = -1^1 + 2^2 + 2^2 + 3^3 + 4^4$$

$$\mathbf{294} := -3! + 3! \times (2! + 2! \times 4!) \qquad = 3^3 + 3^3 - 2^2 \times 2^2 + 4^4$$
$$:= 1! \times 2! \times 4! \times 3! + 3! \qquad = -1^1 + 2^2 \times 4^4 - 3^3 \times 3^3$$

$$\mathbf{295} := 1! + 3! + 3! \times 4! \times 2! \qquad = -1^1 \times 3^3 \times 3^3 + 4^4 \times 2^2$$
$$\mathbf{296} := 2! + 3! + 3! \times (4! + 4!) \qquad = -2^2 \times (3^3 + 3^3) + 4^4 + 4^4$$
$$\mathbf{297} := 1! + (1! + 3! \times 3!) \times (2! + 3!) \qquad = ((1^1 + 1^1) \times 3^3 + 3^3) \times 2^2 - 3^3$$
$$\mathbf{298} := (1! + 4!) \times 3! \times 2! - 2! \qquad = -1^1 + 4^4 + 3^3 + 2^2 \times 2^2$$
$$\mathbf{299} := -1! + (2! + 2! \times 4!) \times 3! \qquad = 1^1 \times 2^2 \times 2^2 + 4^4 + 3^3$$
$$\mathbf{302} := 2! + 2! \times (3! + 3! \times 4!) \qquad = -2^2 - 2^2 + 3^3 + 3^3 + 4^4$$
$$\mathbf{304} := (1! + 1!) \times (2! + 3! + 3! \times 4!) \qquad = -1^1 - 1^1 - 2^2 + 3^3 + 3^3 + 4^4$$
$$\mathbf{305} := -1! + (1! + 2! \times 3!) \times 4! - 3! \qquad = -1^1 \times 1^1 - 2^2 + 3^3 + 4^4 + 3^3$$
$$\mathbf{306} := (1! + 4!) \times 2! \times 3! + 3! \qquad = 1^1 \times 4^4 - 2^2 + 3^3 + 3^3$$
$$\mathbf{307} := 1! + (1! + 4!) \times 2! \times 3! + 3! \qquad = 1^1 \times 1^1 + 4^4 - 2^2 + 3^3 + 3^3$$
$$\mathbf{308} := (1! + 1! + 3! + 3!) \times (4! - 2!) \qquad = 1^1 + 1^1 + 3^3 + 3^3 + 4^4 - 2^2$$
$$\mathbf{310} := (2! + 4!) \times (3! + 3!) - 2! \qquad = 2^2 + 4^4 + 3^3 + 3^3 - 2^2$$
$$\mathbf{311} := -1! + (1! + 3! + 3!) \times 4! \qquad = 1^1 \times 1^1 + 3^3 + 3^3 + 4^4$$
$$\mathbf{313} := 1! + (3! + 3!) \times (2! + 4!) \qquad = -1^1 + 3^3 + 3^3 + 2^2 + 4^4$$
$$\mathbf{316} := (1! + 1!) \times (3! \times 3! + 2! + 5!) \qquad = -1^1 + (1^1 - 3^3) \times 3^3 \times 2^2 + 5^5$$
$$\mathbf{322} := -1! - 1! + 3! \times (3! + 2! \times 4!) \qquad = (1^1 \times 1^1 - 3^3) \times 3^3 + 2^2 \times 4^4$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{323} &:= -1! + (1! + 2! + 3!) \times 3! \times 3! && = -1^1 \times 1^1 + 2^2 \times (3^3 + 3^3 + 3^3) \\
&:= -1! + (1! + 2!) \times 3! \times (4! - 3!) && = -(1^1 + 1^1) \times (2^2 \times 3^3 - 4^4) + 3^3 \\
\\
\mathbf{328} &:= (-1! + (1! + 3!) \times 3!) \times (3! + 2!) && = (1^1 \times 1^1 + 3^3 + 3^3 + 3^3) \times 2^2 \\
&:= 1! \times 1! + (4! \times 2! + 3!) \times 3! && = -(1^1 + 1^1) \times 4^4 + (2^2 + 3^3) \times 3^3 \\
\\
\mathbf{335} &:= -1! + (1! + 1! + 3! + 3!) \times 4! && = -((1^1 + 1^1) \times (1^1 - 3^3)) + 3^3 + 4^4 \\
&:= -1! + (1! + 1! + 2! \times 3!) \times 4! && = -1^1 - 1^1 + (-1^1 + 2^2) \times 3^3 + 4^4 \\
\\
\mathbf{336} &:= (-2! - 3! - 2! + 4!) \times 4! && = 2^2 \times (-3^3 \times 2^2 + 4^4) - 4^4 \\
&:= (1! \times 2! + 3! + 3!) \times 4! && = -1^1 + 2^2 \times 3^3 - 3^3 + 4^4 \\
\\
\mathbf{337} &:= 1! + (2! + 3! + 3!) \times 4! && = 1^1 \times 2^2 \times 3^3 - 3^3 + 4^4 \\
\mathbf{338} &:= (1! + 3! + 3!) \times (2! + 4!) && = 1^1 - 3^3 + 3^3 \times 2^2 + 4^4 \\
\mathbf{339} &:= 1! + (1! + 3! + 3!) \times (2! + 4!) && = 1^1 + 1^1 - 3^3 + 3^3 \times 2^2 + 4^4 \\
\mathbf{340} &:= (1! + 1!) \times (2! + (1! + 3!) \times 4!) && = -(1^1 \times 1^1 - 2^2) \times (1^1 + 3^3) + 4^4 \\
\mathbf{341} &:= -1! + (1! + 3!) \times 4! \times 2! + 3! && = (1^1 + 1^1) \times 3^3 + 4^4 + 2^2 + 3^3 \\
\mathbf{342} &:= 3! + 2! \times (1! + 3!) \times 4! && = (3^3 - 2^2) \times (-1^1 + 3^3) - 4^4 \\
\mathbf{343} &:= (1! \times 1! + 3!) \times (1! + 2! \times 4!) && = (1^1 + 1^1 + 3^3) \times (-1^1 + 2^2) + 4^4 \\
\mathbf{349} &:= -1! + (1! + 3!) \times (2! + 2! \times 4!) && = 1^1 \times 1^1 + (3^3 - 2^2) \times 2^2 + 4^4 \\
\mathbf{350} &:= (1! \times 1! + 3!) \times (2! + 2! \times 4!) && = 1^1 + 1^1 + (3^3 - 2^2) \times 2^2 + 4^4 \\
\mathbf{351} &:= 1! + (1! + 3!) \times (2! + 2! \times 4!) && = -1^1 + (1^1 + 3^3 - 2^2) \times 2^2 + 4^4 \\
\mathbf{352} &:= 2! \times (2! + 3!) \times (-2! + 4!) && = 2^2 \times (-2^2 + 3^3) + 2^2 + 4^4 \\
\mathbf{356} &:= (1! + 1!) \times (-2! + 3! \times (3! + 4!)) && = -(1^1 + 1^1) \times (2^2 - 3^3 - 3^3) + 4^4 \\
\mathbf{358} &:= (1! + (1! + 3!) \times 2!) \times 4! - 2! && = -1^1 - 1^1 + 3^3 \times 2^2 + 4^4 - 2^2 \\
\mathbf{359} &:= -1! + (1! + 2! + 2! \times 3!) \times 4! && = -1^1 \times 1^1 - 2^2 + 2^2 \times 3^3 + 4^4 \\
\mathbf{360} &:= (1! + 2! + 2! \times 3!) \times 4! && = -1^1 \times 2^2 + 2^2 \times 3^3 + 4^4 \\
\mathbf{361} &:= 1! + (1! + 2! + 2! \times 3!) \times 4! && = 1^1 \times 1^1 - 2^2 + 2^2 \times 3^3 + 4^4 \\
\\
\mathbf{362} &:= (1! + 1!) \times (1! + 3! \times (3! + 4!)) && = -(1^1 + 1^1) \times (1^1 - 3^3 - 3^3) + 4^4 \\
&:= (1! + (1! + 3!) \times 2!) \times 4! + 2! && = 1^1 + 1^1 + 3^3 \times 2^2 + 4^4 - 2^2 \\
\\
\mathbf{363} &:= -1! + (1! + 3!) \times 2! \times (2! + 4!) && = -1^1 + (1^1 + 3^3) \times 2^2 - 2^2 + 4^4 \\
\\
\mathbf{364} &:= (2! \times 3! + 2!) \times (2! + 4!) && = (2^2 + 3^3 - 2^2) \times 2^2 + 4^4 \\
&:= (1! + 3!) \times 2! \times (2! + 4!) && = (1^1 + 3^3) \times 2^2 - 2^2 + 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{365} &:= 1! + (1! + 3!) \times 2! \times (2! + 4!) && = 1^1 + (1^1 + 3^3) \times 2^2 - 2^2 + 4^4 \\
\mathbf{366} &:= (1! + (4! + 3!) \times 2!) \times 3! && = 1^1 - 4^4 + (3^3 - 2^2) \times 3^3 \\
\mathbf{367} &:= 1! + (1! + (4! + 3!) \times 2!) \times 3! && = 1^1 + 1^1 - 4^4 + (3^3 - 2^2) \times 3^3 \\
\mathbf{368} &:= (-1! + 4!) \times 2! \times (2! + 3!) && = 1^1 \times 4^4 + 2^2 + 2^2 \times 3^3 \\
\mathbf{369} &:= 1! - (1! - 4!) \times 2! \times (2! + 3!) && = 1^1 \times 1^1 + 4^4 + 2^2 + 2^2 \times 3^3 \\
\mathbf{370} &:= (1! - (1! - 4!) \times (2! + 3!)) \times 2! && = 1^1 + 1^1 + 4^4 + 2^2 + 3^3 \times 2^2 \\
\mathbf{372} &:= (1! + 1!) \times (-3! + (2! + 3!) \times 4!) && = (1^1 + 1^1) \times (3^3 + 2^2 + 3^3) + 4^4 \\
\mathbf{376} &:= (4! \times 2! - 1!) \times (2! + 3!) && = 4^4 + 2^2 \times (-1^1 + 2^2 + 3^3)
\end{aligned}$$

$$\begin{aligned}
\mathbf{380} &:= 2! \times (-2! + (2! + 3!) \times 4!) && = 2^2 \times 2^2 + 2^2 \times 3^3 + 4^4 \\
&:= (1! + 1!) \times (-2! + (2! + 3!) \times 4!) && = 1^1 \times 1^1 \times 2^2 \times (2^2 + 3^3) + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{381} &:= -1! + (-1! + 4! \times (2! + 3!)) \times 2! && = 1^1 \times 1^1 + 4^4 + (2^2 + 3^3) \times 2^2 \\
\mathbf{382} &:= -1! - 1! + 2! \times (2! + 3!) \times 4! && = 1^1 + 1^1 + 2^2 \times (2^2 + 3^3) + 4^4 \\
\mathbf{383} &:= -1! \times 1! + (2! + 3!) \times 2! \times 4! && = -1^1 + (1^1 + 2^2 + 3^3) \times 2^2 + 4^4 \\
\mathbf{386} &:= 1! + 1! + (2! + 3!) \times 2! \times 4! && = -1^1 + (1^1 + 2^2) \times 3^3 - 2^2 + 4^4 \\
\mathbf{387} &:= 1! + (1! + (2! + 3!) \times 4!) \times 2! && = (1^1 \times 1^1 + 2^2) \times 3^3 + 4^4 - 2^2 \\
\mathbf{389} &:= -1! + (1! + 2! \times 3!) \times (3! + 4!) && = -1^1 - 1^1 + 2^2 \times 3^3 + 3^3 + 4^4 \\
\mathbf{390} &:= (1! + 2! \times 3!) \times (3! + 4!) && = -1^1 + 2^2 \times 3^3 + 3^3 + 4^4 \\
\mathbf{391} &:= 1! + (1! + 2! \times 3!) \times (3! + 4!) && = (1^1 + 1^1 + 2^2) \times 3^3 - 3^3 + 4^4 \\
\mathbf{395} &:= -1! + (1! + 2!) \times 3! \times (4! - 2!) && = (1^1 \times 1^1 + 2^2) \times 3^3 + 4^4 + 2^2 \\
\mathbf{396} &:= ((1! + 1! + 3!) \times 4! + 3!) \times 2! && = (1^1 + 1^1) \times (-3^3 + 4^4 - 3^3 - 2^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{400} &:= (2! + 3!) \times (2! + 4! + 4!) && = -2^2 \times 3^3 - 2^2 + 4^4 + 4^4 \\
&:= (1! + 1! + 3!) \times (2! + 4! + 4!) && = -(1^1 \times 1^1 + 3^3) \times 2^2 + 4^4 + 4^4
\end{aligned}$$

$$\mathbf{406} := -1! - 1! + 5! + 3! \times (4! + 4!) \qquad = -(1^1 + 1^1) \times 5^5 + 3^3 \times 4^4 - 4^4$$

$$\begin{aligned}
\mathbf{407} &:= -1! + (1! - 3! - 2! + 4!) \times 4! && = -1^1 + (1^1 - 3^3) \times 2^2 + 4^4 + 4^4 \\
&:= -1! + (1! + 3!) \times 4! + 5! + 5! && = 1^1 - (1^1 - 3^3) \times 4^4 - 5^5 - 5^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{408} &:= 2! \times (2! + 3!) \times 4! + 4! && = 2^2 - 2^2 \times 3^3 + 4^4 + 4^4 \\
&:= (1! - 3! - 2! + 4!) \times 4! && = (1^1 - 3^3) \times 2^2 + 4^4 + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{409} &:= 1! + (1! - 3! - 2! + 4!) \times 4! && = 1^1 + (1^1 - 3^3) \times 2^2 + 4^4 + 4^4 \\
\mathbf{418} &:= (-1! + (1! + 3!) \times (4! + 3!)) \times 2! && = (1^1 + 1^1) \times 3^3 + 4^4 + 3^3 \times 2^2
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{419} &:= -1! + (1! + 3!) \times (3! \times 3! + 4!) && = -(1^1 + 1^1) \times 3^3 + 3^3 \times 3^3 - 4^4 \\
&:= -1! + (1! + 3!) \times 2! \times (3! + 4!) && = (1^1 + 1^1 + 3^3 - 2^2) \times 3^3 - 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{420} &:= 3! \times (-2! + 2! \times 4! + 4!) && = (-3^3 + 2^2) \times 2^2 + 4^4 + 4^4 \\
\mathbf{426} &:= (1! \times 1! + 2!) \times (-2! + 3! \times 4!) && = (1^1 + 1^1) \times (-2^2 \times 2^2 - 3^3 + 4^4) \\
\mathbf{430} &:= -1! \times 1! \times 2! + (-3! + 4!) \times 4! && = -1^1 + (1^1 - 2^2) \times 3^3 + 4^4 + 4^4 \\
\mathbf{431} &:= 1! - 2! - (3! - 4!) \times 4! && = (1^1 - 2^2) \times 3^3 + 4^4 + 4^4 \\
\mathbf{432} &:= (-3! + 4!) \times 4! - 2! + 2! && = (3^3 + 4^4 - 4^4) \times 2^2 \times 2^2 \\
\mathbf{434} &:= 2! + 4! \times (3! + 3! + 3!) && = -2^2 \times 4^4 + (3^3 + 3^3) \times 3^3 \\
\mathbf{439} &:= 1! + (1! + 2!) \times 3! \times 4! + 3! && = (1^1 + 1^1) \times (2^2 - 3^3 + 4^4) - 3^3 \\
\mathbf{442} &:= (-1! + (1! + 2!) \times 3!) \times (2! + 4!) && = (1^1 + 1^1 + 2^2) \times (3^3 + 2^2) + 4^4 \\
\mathbf{443} &:= -1! + ((1! + 2!) \times 4! + 2!) \times 3! && = -1^1 + (1^1 - 2^2) \times (-4^4 + 2^2 \times 3^3) \\
\mathbf{444} &:= ((1! + 2!) \times 4! + 2!) \times 3! && = (1^1 - 2^2) \times (-4^4 + 2^2 \times 3^3) \\
\mathbf{445} &:= 1! + ((1! + 2!) \times 4! + 2!) \times 3! && = 1^1 - (1^1 - 2^2) \times (4^4 - 2^2 \times 3^3) \\
\mathbf{449} &:= -1! + (1! + 2!) \times 3! \times (4! + 1!) && = (1^1 + 1^1) \times (-2^2 - 3^3 + 4^4) - 1^1 \\
\mathbf{450} &:= (2! + 1!) \times (3! + 3! \times 4!) && = 2^2 - (1^1 - 3^3) \times 3^3 - 4^4 \\
\mathbf{451} &:= 1! + (1! + 2!) \times 3! \times (4! + 1!) && = -(1^1 + 1^1) \times (2^2 + 3^3 - 4^4) + 1^1 \\
\mathbf{453} &:= (1! + (1! + 4!) \times 3!) \times (1! + 2!) && = (1^1 + 1^1) \times (4^4 - 3^3) - 1^1 - 2^2 \\
\mathbf{454} &:= (1! + (1! + 2!) \times 3!) \times 4! - 2! && = (1^1 + 1^1 - 2^2) \times (3^3 - 4^4) - 2^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{456} &:= (1! + 1! + 1!) \times 3! \times 4! + 4! && = -(1^1 + 1^1) \times (1^1 + 3^3) + 4^4 + 4^4 \\
&:= ((1! \times 1! + 2!) \times 3! + 1!) \times 4! && = (1^1 + 1^1 - 2^2) \times (3^3 + 1^1 - 4^4) \\
\\
\mathbf{457} &:= 1! + (1! + 4!) \times (4! - 3!) + 3! && = -1^1 \times 1^1 + 4^4 + 4^4 - 3^3 - 3^3 \\
&:= 1! + (1! + (2! + 1!) \times 3!) \times 4! && = -1^1 + (1^1 - 2^2 + 1^1) \times (3^3 - 4^4) \\
\\
\mathbf{458} &:= 1! + 1! - (3! - 4!) \times 4! + 4! && = (1^1 + 1^1) \times (-3^3 - 4^4 + 4^4 + 4^4) \\
&:= (1! + (1! + 2!) \times 3!) \times 4! + 2! && = (1^1 + 1^1) \times (-2^2 - 3^3 + 4^4 + 2^2) \\
&:= 1! + 1! - (4! - 5!) \times 3! - 5! && = (1^1 + 1^1) \times (4^4 + 5^5 - 3^3 - 5^5) \\
\\
\mathbf{462} &:= (4! - 3!) \times (2! + 4!) - 3! && = 4^4 - 3^3 + 2^2 + 4^4 - 3^3 \\
\mathbf{467} &:= -1! + ((1! + 2!) \times 4! + 3!) \times 3! && = -1^1 - 1^1 - 2^2 - 4^4 + 3^3 \times 3^3 \\
\\
\mathbf{468} &:= (2! \times 3! + 3!) \times (2! + 4!) && = 2^2 \times (3^3 + 3^3) - 2^2 + 4^4 \\
&:= ((1! + 2!) \times 4! + 3!) \times 3! && = -1^1 - 2^2 - 4^4 + 3^3 \times 3^3
\end{aligned}$$

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$$\begin{aligned}
\mathbf{469} &:= 1! + (1! + 2!) \times (2! + 4!) \times 3! && = (1^1 + 1^1) \times (-2^2 - 2^2 + 4^4) - 3^3 \\
\mathbf{474} &:= (1! + (1! + 2!) \times (2! + 4!)) \times 3! && = (1^1 + 1^1) \times (2^2 + 2^2 + 4^4 - 3^3) \\
\mathbf{479} &:= -1! \times 1! + (2! - 3! + 4!) \times 4! && = -1^1 - 1^1 - 2^2 - 3^3 + 4^4 + 4^4 \\
\\
\mathbf{480} &:= (-1! \times 1! \times 2! - 2! + 4!) \times 4! && = -(1^1 + 1^1) \times 2^2 \times 2^2 + 4^4 + 4^4 \\
&:= (1! + 1! + 2!) \times (-4! + 4! \times 3!) && = -1^1 \times 1^1 - 2^2 + 4^4 + 4^4 - 3^3 \\
\\
\mathbf{481} &:= 1! + (2! - 3! + 4!) \times 4! && = -1^1 \times 2^2 - 3^3 + 4^4 + 4^4 \\
\mathbf{485} &:= -1! + (1! + 2! + 4!) \times (-3! + 4!) && = (-1^1 \times 1^1 + 2^2) \times 4^4 - 3^3 - 4^4 \\
\mathbf{486} &:= (1! + 1! + 4! + 1!) \times (-3! + 4!) && = 1^1 + 1^1 + 4^4 - 1^1 - 3^3 + 4^4 \\
\mathbf{487} &:= 1! - (1! + 2! + 4!) \times (3! - 4!) && = -1^1 - 1^1 + 2^2 + 4^4 - 3^3 + 4^4 \\
\mathbf{490} &:= (1! + 1! - 4!) \times (2! - 4!) + 3! && = 1^1 \times 1^1 + 4^4 + 2^2 + 4^4 - 3^3 \\
\mathbf{500} &:= (4! + 1!) \times (-2! - 2! + 4!) && = 4^4 + (1^1 - 2^2) \times 2^2 + 4^4 \\
\mathbf{502} &:= -1! - 1! + (-1! - 2! + 4!) \times 4! && = -(1^1 + 1^1) \times (1^1 + 2^2) + 4^4 + 4^4 \\
\mathbf{503} &:= -1! \times 1! + (-1! - 2! + 4!) \times 4! && = -1^1 - (1^1 + 1^1) \times 2^2 + 4^4 + 4^4 \\
\\
\mathbf{504} &:= (1! - 2! - 2! + 4!) \times 4! && = -1^1 \times 2^2 - 2^2 + 4^4 + 4^4 \\
&:= (2! \times 4! - 3!) \times (3! + 3!) && = 2^2 - 4^4 + 3^3 + 3^3 \times 3^3 \\
\\
\mathbf{505} &:= 1! + (1! - 2! - 2! + 4!) \times 4! && = 1^1 \times 1^1 - 2^2 - 2^2 + 4^4 + 4^4 \\
\mathbf{506} &:= (4! - 1!) \times (4! \times 1! - 2!) && = 4^4 - 1^1 + 4^4 - 1^1 - 2^2 \\
\mathbf{507} &:= 1! - (1! - 4!) \times (4! - 2!) && = -1^1 \times 1^1 + 4^4 + 4^4 - 2^2 \\
\\
\mathbf{508} &:= (2! - 4!) \times (2! - 4!) + 4! && = -2^2 - 4^4 + 2^2 \times 4^4 - 4^4 \\
&:= 2! + (1! - 4!) \times (2! - 4!) && = (2^2 - 1^1) \times 4^4 - 2^2 - 4^4 \\
\\
\mathbf{510} &:= (-1! \times 1! - 3! + 4!) \times (3! + 4!) && = -1^1 - 1^1 - 3^3 + 4^4 + 3^3 + 4^4 \\
\mathbf{511} &:= 1! - (1! + 3! - 4!) \times (3! + 4!) && = -1^1 \times 1^1 - 3^3 + 4^4 + 3^3 + 4^4 \\
\mathbf{516} &:= -3! - 3! + 4! \times (4! - 2!) && = -3^3 + 3^3 + 4^4 + 4^4 + 2^2 \\
\mathbf{520} &:= (1! + 1! + 4!) \times (-2! - 2! + 4!) && = -(1^1 + 1^1) \times (4^4 - 2^2) + 2^2 \times 4^4 \\
\mathbf{524} &:= -2! - 2! + (-2! + 4!) \times 4! && = 2^2 + 2^2 + 2^2 + 4^4 + 4^4 \\
\mathbf{525} &:= -1! \times 1! - 2! + (-2! + 4!) \times 4! && = 1^1 - (1^1 - 2^2) \times 2^2 + 4^4 + 4^4 \\
\mathbf{526} &:= -1! \times 1! \times 2! + (-2! + 4!) \times 4! && = -1^1 - 1^1 + 2^2 \times 2^2 + 4^4 + 4^4 \\
\mathbf{527} &:= 1! - 2! - (2! - 4!) \times 4! && = -1^1 + 2^2 \times 2^2 + 4^4 + 4^4 \\
\\
\mathbf{528} &:= (-2! + 2! \times 4! - 4!) \times 4! && = 2^2 \times (2^2 + 4^4) - 4^4 - 4^4 \\
&:= ((1! - 2!) \times 2! + 4!) \times 4! && = 1^1 \times 2^2 \times 2^2 + 4^4 + 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$:= 4! \times (3! \times 2! \times 2! - 2!)$ $= (4^4 - (3^3 + 2^2) \times 2^2) \times 2^2$

529 $:= -1! + 2! + (-2! + 4!) \times 4!$ $= 1^1 + 2^2 \times 2^2 + 4^4 + 4^4$
530 $:= 1! \times 1! \times 2! - (2! - 4!) \times 4!$ $= 1^1 + 1^1 + 2^2 \times 2^2 + 4^4 + 4^4$
531 $:= 1! \times 1! + 2! - (2! - 4!) \times 4!$ $= -1^1 + (1^1 + 2^2) \times 2^2 + 4^4 + 4^4$
532 $:= 2! + 2! - (2! - 4!) \times 4!$ $= 2^2 \times 2^2 + 2^2 + 4^4 + 4^4$
533 $:= -1! \times 1! + 3! + (-2! + 4!) \times 4!$ $= -1^1 - 1^1 + 3^3 - 2^2 + 4^4 + 4^4$
534 $:= (-1! \times 2! + 4!) \times 4! + 3!$ $= -1^1 - 2^2 + 4^4 + 4^4 + 3^3$
535 $:= 1! - (2! - 4!) \times 4! + 3!$ $= -1^1 \times 2^2 + 4^4 + 4^4 + 3^3$

536 $:= 1! + (1! - 4!) \times (1! - 4!) + 3!$ $= -1^1 - 1^1 + 4^4 - 1^1 + 4^4 + 3^3$
$:= 1! + 1! + 3! + 4! \times (4! - 2!)$ $= 1^1 \times 1^1 + 3^3 + 4^4 + 4^4 - 2^2$

539 $:= -1! \times 1! - 3! \times 3! + 4! \times 4!$ $= (1^1 + 1^1) \times 3^3 - 3^3 + 4^4 + 4^4$

540 $:= (1! + 1! + 1!) \times 3! \times (4! + 3!)$ $= 1^1 + (1^1 + 1^1) \times (3^3 + 4^4) - 3^3$
$:= (1! + (1! + 3!) \times 2!) \times 3! \times 3!$ $= (-1^1 - 1^1 + 3^3 - 2^2) \times 3^3 - 3^3$

541 $:= 1! - (1! - 4!) \times 4! - 2! \times 3!$ $= -1^1 - 1^1 + 4^4 + 4^4 + 2^2 + 3^3$
543 $:= -1! + (1! + 4!) \times (4! - 2!) - 3!$ $= 1^1 \times 1^1 \times 4^4 + 4^4 + 2^2 + 3^3$
544 $:= (-1! + 4!) \times 4! - 3! - 2!$ $= 1^1 + 4^4 + 4^4 + 3^3 + 2^2$
545 $:= 1! + (1! + 4!) \times (4! - 2!) - 3!$ $= 1^1 + 1^1 + 4^4 + 4^4 + 2^2 + 3^3$
547 $:= 1! + (1! - 2! + 4!) \times 4! - 3!$ $= (1^1 + 1^1) \times 2^2 + 4^4 + 4^4 + 3^3$
550 $:= (-1! + (-1! + 4!) \times 2! \times 3!) \times 2!$ $= (1^1 + 1^1) \times (4^4 - 2^2 + 3^3 - 2^2)$
551 $:= -1! + (-1! + (3! + 3!) \times 2!) \times 4!$ $= 1^1 - (1^1 - 3^3) \times (3^3 + 2^2) - 4^4$
552 $:= (2! - 3!) \times 3! + 4! \times 4!$ $= 2^2 \times (-3^3 - 3^3 + 4^4) - 4^4$
553 $:= 1! - (1! - (2! + 2!) \times 3!) \times 4!$ $= -(1^1 + (1^1 - 2^2) \times 2^2) \times 3^3 + 4^4$
554 $:= (1! - (1! - 4!) \times 2! \times 3!) \times 2!$ $= (1^1 + 1^1) \times (4^4 - 2^2 + 3^3) - 2^2$
558 $:= -(1! \times 1! + 2!) \times 3! + 4! \times 4!$ $= -(1^1 + 1^1) \times (2^2 - 3^3) + 4^4 + 4^4$
562 $:= -2! - 3! - 3! + 4! \times 4!$ $= -2^2 + 3^3 + 3^3 + 4^4 + 4^4$

564 $:= (1! + 1!) \times (-3! + 3! \times (4! + 4!))$ $= -1^1 - 1^1 + 3^3 + 3^3 + 4^4 + 4^4$
$:= (-1! + (1! + 1!) \times 4!) \times 3! \times 2!$ $= (1^1 + 1^1) \times (1^1 + 4^4 + 3^3) - 2^2$

565 $:= 1! - 3! - 3! + 4! \times 4!$ $= -1^1 + 3^3 + 3^3 + 4^4 + 4^4$

566 $:= 1! + 1! - 3! - 3! + 4! \times 4!$ $= (1^1 \times 1^1) \times 3^3 + 3^3 + 4^4 + 4^4$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$:= (1! - (1! - 2! \times 4!) \times 3!) \times 2!$ $= (1^1 + 1^1) \times (2^2 + 4^4 + 3^3 - 2^2)$

567 $:= -1! - 1! - 1! - 3! + 4! \times 4!$ $= 1^1 + (1^1 + 1^1) \times 3^3 + 4^4 + 4^4$
568 $:= -(1! + 1!) \times 1! - 3! + 4! \times 4!$ $= (1^1 + 1^1) \times (1^1 + 3^3) + 4^4 + 4^4$
570 $:= -2! \times 3! + 3! + 4! \times 4!$ $= 2^2 + 3^3 + 3^3 + 4^4 + 4^4$
571 $:= 1! - (1! - (2! + 2!) \times 4!) \times 3!$ $= (1^1 + 1^1) \times (2^2 \times 2^2 + 4^4) + 3^3$
572 $:= (1! + 1! + 2!) \times (3! \times 4! - 1!)$ $= (1^1 + 1^1) \times (2^2 + 3^3 + 4^4 - 1^1)$
574 $:= 1! + 1! + 2! - 3! + 4! \times 4!$ $= (1^1 + 1^1) \times (2^2 + 3^3) + 4^4 + 4^4$
575 $:= -1! + (1! + 1! + 2!) \times 3! \times 4!$ $= 1^1 + (1^1 + 1^1) \times (2^2 + 3^3 + 4^4)$
576 $:= (2! + 2!) \times 1! \times 3! \times 4!$ $= 2^2 \times (-2^2 \times (1^1 + 3^3) + 4^4)$
577 $:= 1! \times 1! + 3! \times 2! \times 4! \times 2!$ $= 1^1 - ((1^1 + 3^3) \times 2^2 - 4^4) \times 2^2$
579 $:= -1! + (1! + 4! \times 3!) \times (3! - 2!)$ $= -1^1 - 1^1 - 4^4 + 3^3 \times (3^3 + 2^2)$

580 $:= 2! \times (2! + (3! + 3!) \times 4!)$ $= 2^2 \times (2^2 \times 3^3 - 3^3) + 4^4$
$:= (2! + 2!) \times (1! + 3! \times 4!)$ $= 2^2 \times (2^2 - 1^1) \times 3^3 + 4^4$

581 $:= 1! - ((1! + (4! \times 3!)) \times (2! - 3!))$ $= -1^1 \times 1^1 \times 4^4 + (3^3 + 2^2) \times 3^3$
582 $:= (1! - 4! \times (2! - 3!)) \times 3!$ $= 1^1 - 4^4 + (2^2 + 3^3) \times 3^3$
583 $:= 1! + ((1! + (4! \times (3! - 2!))) \times 3!)$ $= 1^1 + 1^1 - 4^4 + (3^3 + 2^2) \times 3^3$
584 $:= ((1! + 1!) + 2!) \times ((3! \times 4!) + 2!)$ $= (-1^1 - 1^1 - 2^2 \times 3^3 + 4^4) \times 2^2$
587 $:= -1! + (((1! + (4! \times 2!)) \times 3!) \times 2!)$ $= -1^1 + (-1^1 + 4^4 - 2^2 \times 3^3) \times 2^2$

588 $:= ((2! + 2!) \times 4! + 2!) \times 3!$ $= -2^2 + 2^2 \times (4^4 - 2^2 \times 3^3)$
$:= (1! + 4! \times 2!) \times 3! \times 2!$ $= (-1^1 + 4^4 - 2^2 \times 3^3) \times 2^2$

589 $:= 1! + (((1! + (4! \times 2!)) \times 3!) \times 2!)$ $= 1^1 - (1^1 - 4^4 + 2^2 \times 3^3) \times 2^2$
590 $:= (1! + ((1! + (2! \times 4!)) \times 3!)) \times 2!$ $= -1^1 - 1^1 + 2^2 \times (4^4 - 3^3 \times 2^2)$
592 $:= ((1! + 1!) \times (2! + 3!)) + (4! \times 4!)$ $= -1^1 - (1^1 - 2^2) \times 3^3 + 4^4 + 4^4$
593 $:= -(1! - ((1! + 2!) \times 3!)) + (4! \times 4!)$ $= -(1^1 \times 1^1 - 2^2) \times 3^3 + 4^4 + 4^4$
594 $:= (((1! \times 1!) + 2!) \times 3!) + (4! \times 4!)$ $= 1^1 - (1^1 - 2^2) \times 3^3 + 4^4 + 4^4$
595 $:= (1! + ((1! - 3!) \times 4!)) \times (1! - 3!)$ $= (1^1 + 1^1) \times (3^3 + 4^4 + 1^1) + 3^3$
596 $:= ((-1! + ((1! + 4!) \times 3!)) \times 2!) \times 2!$ $= (1^1 \times 1^1 + 4^4 - 3^3 \times 2^2) \times 2^2$
598 $:= (-1! + (((1! + 4!) \times 3!) \times 2!)) \times 2!$ $= (1^1 + 1^1) \times (4^4 + 3^3 + 2^2 \times 2^2)$
600 $:= ((((1! \times 1!) + 4!) \times 3!) \times 2!) \times 2!$ $= (1^1 + 1^1 + 4^4 - 3^3 \times 2^2) \times 2^2$
604 $:= (1! + (1! + 4!) \times 3!) \times 2! \times 2!$ $= (1^1 + 1^1) \times 4^4 + (3^3 - 2^2) \times 2^2$
612 $:= ((1! + 1! + 2!) \times 4! + 3!) \times 3!$ $= (1^1 + 1^1) \times (-2^2 + 4^4 + 3^3 + 3^3)$
616 $:= -2! - 3! + (2! + 4!) \times 4!$ $= 2^2 \times 3^3 - 2^2 + 4^4 + 4^4$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{617} &:= -1! \times 1! - 3! + (2! + 4!) \times 4! && = 1^1 - (1^1 - 3^3) \times 2^2 + 4^4 + 4^4 \\
\mathbf{618} &:= -1! \times 1! \times 3! + (2! + 4!) \times 4! && = -1^1 - 1^1 + 3^3 \times 2^2 + 4^4 + 4^4 \\
\mathbf{619} &:= 1! - 3! + (2! + 4!) \times 4! && = -1^1 + 3^3 \times 2^2 + 4^4 + 4^4 \\
\mathbf{620} &:= (1! + 1! + 4!) \times 4! + 2! - 3! && = 1^1 \times 1^1 \times 4^4 + 4^4 + 2^2 \times 3^3 \\
\mathbf{623} &:= -1! + (1! + 3! \times 2!) \times (4! + 4!) && = -1^1 + (1^1 + 3^3) \times 2^2 + 4^4 + 4^4 \\
\mathbf{624} &:= (2! + (2! + 2!) \times 3!) \times 4! && = 2^2 \times 2^2 \times (-2^2 + 3^3) + 4^4 \\
\mathbf{628} &:= -1! - 1! + 3! + (2! + 4!) \times 4! && = (1^1 + 1^1 + 3^3) \times 2^2 + 4^4 + 4^4 \\
\mathbf{647} &:= -1! + (-1! - 2! + 3! + 4!) \times 4! && = (1^1 \times 1^1 + 2^2) \times 3^3 + 4^4 + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{648} &:= (3! + 3! + 3!) \times 3! \times 3! && = -3^3 - 3^3 - 3^3 + 3^3 \times 3^3 \\
&:= (2! \times 3! + 3!) \times 3! \times 3! && = -2^2 \times 3^3 + 3^3 + 3^3 \times 3^3 \\
&:= (1! + 2!) \times 3! \times 3! \times 3! && = -(1^1 \times 2^2 - 3^3) \times 3^3 + 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{649} &:= 1! + (1! + 2!) \times 3! \times 3! \times 3! && = 1^1 \times 1^1 - (2^2 - 3^3) \times 3^3 + 3^3 \\
\mathbf{656} &:= (3! + ((1! + 4!) \times (2! + 4!))) && = (((-(3^3 + 1^1) + 4^4) \times 2^2) - 4^4) \\
\mathbf{658} &:= -1! - 1! + (4! - 2!) \times (3! + 4!) && = -1^1 - 1^1 - 4^4 + 2^2 \times (-3^3 + 4^4) \\
\mathbf{659} &:= (-1! + ((-2! + 4!) \times (3! + 4!))) && = ((-1^1 + (2^2 \times (4^4 - 3^3))) - 4^4) \\
\mathbf{660} &:= (-2! + 4!) \times (3! + 4!) && = 2^2 \times (4^4 - 3^3) - 4^4 \\
\mathbf{661} &:= 1! + (-2! + 4!) \times (3! + 4!) && = 1^1 + 2^2 \times (4^4 - 3^3) - 4^4 \\
\mathbf{662} &:= 1! + 1! + (4! - 2!) \times (4! + 3!) && = 1^1 + 1^1 - 4^4 + 2^2 \times (4^4 - 3^3) \\
\mathbf{666} &:= (-1! \times 1! + 5!) \times 3! - 4! \times 2! && = -(1^1 + 1^1) \times 5^5 + 3^3 \times 4^4 + 2^2 \\
\mathbf{671} &:= -1! + (1! + 3!) \times 2! \times 2! \times 4! && = -1^1 - (1^1 - 3^3) \times 2^2 \times 2^2 + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{672} &:= 2! \times (2! + 2! \times 3!) \times 4! && = 2^2 \times (-2^2 + 2^2 \times 3^3) + 4^4 \\
&:= (1! + 3!) \times 2! \times 2! \times 4! && = (-1^1 + 3^3) \times 2^2 \times 2^2 + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{673} &:= 1! + (1! + 3!) \times 2! \times 2! \times 4! && = 1^1 - (1^1 - 3^3) \times 2^2 \times 2^2 + 4^4 \\
\mathbf{674} &:= 1! + 1! - (2! - 3! - 4!) \times 4! && = (1^1 + 1^1 + 2^2) \times 3^3 + 4^4 + 4^4 \\
\mathbf{689} &:= (-1! \times 1! + 5!) \times 3! - 1! - 4! && = -(1^1 + 1^1) \times 5^5 + 3^3 \times (1^1 + 4^4) \\
\mathbf{696} &:= (-1! + (1! + 2! + 2!) \times 3!) \times 4! && = (1^1 + 1^1) \times (-2^2 \times (2^2 - 3^3) + 4^4) \\
\mathbf{701} &:= -1! - (1! - 3! - 4!) \times 4! + 3! && = -1^1 + (-1^1 + 3^3 - 4^4 + 4^4) \times 3^3 \\
\mathbf{702} &:= 3! + (3! - 1! + 4!) \times 4! && = 3^3 \times (3^3 - 1^1) + 4^4 - 4^4 \\
\mathbf{703} &:= 1! - (1! - 3! - 4!) \times 4! + 3! && = 1^1 - (1^1 - 3^3 + 4^4 - 4^4) \times 3^3 \\
\mathbf{712} &:= -1! + (1! + 3! + 4!) \times (-1! + 4!) && = -(1^1 + 1^1) \times (3^3 - 4^4 + 1^1) + 4^4 \\
\mathbf{713} &:= (1! \times 1! + 3! + 4!) \times (-1! + 4!) && = -(1^1 + 1^1) \times (3^3 - 4^4) - 1^1 + 4^4 \\
\mathbf{714} &:= -3! + 3! \times 4! + 4! \times 4! && = -3^3 - 3^3 + 4^4 + 4^4 + 4^4 \\
\mathbf{718} &:= (1! \times 1! \times 3! + 4!) \times 4! - 2! && = -(1^1 + 1^1) \times (3^3 - 4^4) + 4^4 + 2^2
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{720} &:= (1! \times 1! + 2! + 2!) \times 3! \times 4! && = (1^1 + 1^1) \times (-2^2 + 2^2 \times 3^3 + 4^4) \\
\mathbf{722} &:= 1! \times 1! \times 2! + (3! + 4!) \times 4! && = (1^1 + 1^1) \times (2^2 - 3^3 + 4^4) + 4^4 \\
\mathbf{728} &:= (4! + 2!) \times (-2! + 3! + 4!) && = 4^4 + (2^2 + 2^2) \times 3^3 + 4^4 \\
\mathbf{730} &:= (-1! \times 1! + 3!) \times (2! + 3! \times 4!) && = (1^1 + 1^1) \times ((3^3 - 2^2) \times 3^3 - 4^4) \\
\mathbf{736} &:= (-1! \times 1! + 4!) \times (2! + 3! + 4!) && = -1^1 + (-1^1 + 4^4) \times 2^2 - 3^3 - 4^4 \\
\mathbf{737} &:= 1! - (1! - 4!) \times (2! + 3! + 4!) && = (1^1 + 1^1) \times 4^4 - 2^2 - 3^3 + 4^4 \\
\mathbf{741} &:= -1! + (1! + 3! + 4!) \times 4! - 2! && = -(1^1 \times 1^1) \times 3^3 - 4^4 + 4^4 \times 2^2 \\
\mathbf{742} &:= (1! + 3! + 4!) \times 4! - 2! && = 1^1 - 3^3 - 4^4 + 4^4 \times 2^2 \\
\\
\mathbf{743} &:= -1! \times 1! + (3! + 4!) \times 4! + 4! && = 1^1 + 1^1 - 3^3 + 4^4 + 4^4 + 4^4 \\
&:= 1! + (1! + 3! + 4!) \times 4! - 2! && = 1^1 + 1^1 - 3^3 - 4^4 + 4^4 \times 2^2 \\
\\
\mathbf{744} &:= (-1! \times 1! + 4! + 2! + 3!) \times 4! && = -1^1 + (1^1 + 4^4) \times 2^2 - 3^3 - 4^4 \\
\mathbf{745} &:= 1! - (1! - 4! - 2! - 3!) \times 4! && = (1^1 + 1^1) \times 4^4 + 2^2 - 3^3 + 4^4 \\
\mathbf{749} &:= -1! + (-1! + 2! + 4!) \times (3! + 4!) && = (1^1 + 1^1) \times (2^2 + 4^4) - 3^3 + 4^4 \\
\\
\mathbf{756} &:= 3! \times 3! + (3! + 4!) \times 4! && = 3^3 \times 3^3 + 3^3 + 4^4 - 4^4 \\
&:= (1! + 4!) \times (4! + 3!) + 3! && = (1^1 + 4^4 - 4^4 + 3^3) \times 3^3 \\
\\
\mathbf{757} &:= 1! + (1! + 4!) \times (4! + 3!) + 3! && = 1^1 + (1^1 + 4^4 - 4^4 + 3^3) \times 3^3 \\
\\
\mathbf{767} &:= -1! + (-(1! - 3!) \times 3! + 2!) \times 4! && = -1^1 + (-1^1 - 3^3 + 3^3 + 2^2) \times 4^4 \\
&:= -1! \times 1! + 2! \times (4! + 6!) - 6! && = -1^1 - (1^1 - 2^2) \times 4^4 - 6^6 + 6^6 \\
\\
\mathbf{768} &:= ((2! + 2!) \times 2! + 4!) \times 4! && = (2^2 + 2^2 - 2^2) \times 4^4 - 4^4 \\
&:= (-2! + 4!) \times 3! \times 3! - 4! && = 2^2 \times 4^4 + 3^3 - 3^3 - 4^4 \\
&:= 2! \times 6! - 6! + 4! + 4! && = (2^2 + 6^6 - 6^6) \times 4^4 - 4^4 \\
&:= (-2! + 4!) \times 4! + 5! + 5! && = 2^2 \times 4^4 - 4^4 + 5^5 - 5^5 \\
\\
\mathbf{769} &:= 1! - ((1! - 3!) \times 3! - 2!) \times 4! && = 1^1 - (1^1 + 3^3 - 3^3 - 2^2) \times 4^4 \\
&:= 1! \times 1! + 2! \times (4! + 6!) - 6! && = 1^1 - (1^1 - 2^2) \times 4^4 + 6^6 - 6^6 \\
\mathbf{770} &:= 1! + 1! + 5! \times 3! + 2! \times 4! && = -(1^1 + 1^1) \times 5^5 + 3^3 \times (2^2 + 4^4) \\
\mathbf{781} &:= 1! - (1! - 3!) \times (4! + 2!) \times 3! && = (-(1^1 + 1^1) \times 3^3 + 4^4) \times 2^2 - 3^3 \\
\mathbf{782} &:= (1! \times 1! - 4!) \times (2! - 3! \times 3!) && = (1^1 + 1^1) \times (4^4 + 2^2 \times 3^3 + 3^3) \\
\mathbf{791} &:= -1! + ((1! + 4!) + 2! + 3!) \times 4! && = (1^1 + 1^1) \times 4^4 - 2^2 + 3^3 + 4^4 \\
\mathbf{792} &:= (1! + 1! - 4!) \times 2! \times (3! - 4!) && = 1^1 - (1^1 - 4^4) \times 2^2 + 3^3 - 4^4 \\
\mathbf{793} &:= 1! + (1! + 4! + 2! + 3!) \times 4! && = -1^1 - 1^1 + 4^4 \times 2^2 + 3^3 - 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{799} := -1! + (1! + 4!) \times (2! + 3! + 4!) = (1^1 + 1^1) \times 4^4 + 2^2 + 3^3 + 4^4$$
$$\mathbf{800} := (1! \times 1! + 4!) \times (2! + 3! + 4!) = 1^1 + (1^1 + 4^4) \times 2^2 + 3^3 - 4^4$$
$$\mathbf{804} := (2! - (2! - 4!) \times 3!) \times 3! = -2^2 + 2^2 \times (4^4 - 3^3 - 3^3)$$
$$\mathbf{806} := (1! - (1! - 3!) \times 3!) \times (4! + 2!) = -1^1 - 1^1 + (-3^3 - 3^3 + 4^4) \times 2^2$$
$$\mathbf{813} := -1! + (1! + 3! \times 3!) \times (4! - 2!) = 1^1 + (1^1 - 3^3 - 3^3 + 4^4) \times 2^2$$
$$\mathbf{816} := 1! \times 1! \times 4! \times (3! \times 3! - 2!) = (1^1 + 1^1 + 4^4 - 3^3 - 3^3) \times 2^2$$
$$\mathbf{818} := (1! - (1! + 3! - 4!) \times 4!) \times 2! = (1^1 + 1^1) \times (3^3 + 4^4) + 4^4 - 2^2$$
$$\mathbf{822} := (-1! + (1! - 2! + 4!) \times 3!) \times 3! = (-1^1 \times 1^1 + 2^2) \times 4^4 + 3^3 + 3^3$$
$$\mathbf{826} := (-1! + (1! - 4!) \times (3! - 4!)) \times 2! = (1^1 + 1^1) \times (4^4 + 3^3) + 4^4 + 2^2$$
$$\mathbf{850} := (4! + 1!) \times (-2! + 3! \times 3!) = 4^4 + (-1^1 - 2^2 + 3^3) \times 3^3$$
$$\mathbf{851} := -1! \times 1! + 3! \times (-2! + 3! \times 4!) = 1^1 - (1^1 - 3^3 + 2^2) \times 3^3 + 4^4$$
$$\mathbf{852} := (-1! + (1! + 2!) \times 4!) \times 3! \times 2! = -1^1 - (1^1 - 2^2) \times (4^4 + 3^3) + 2^2$$
$$\mathbf{853} := 1! \times 1! - 3! \times (2! - 3! \times 4!) = -1^1 + (1^1 - 3^3) \times (2^2 - 3^3) + 4^4$$
$$\mathbf{854} := 1! + 1! - 3! \times (2! - 3! \times 4!) = (1^1 \times 1^1 - 3^3) \times (2^2 - 3^3) + 4^4$$
$$\mathbf{860} := 2! \times (-2! + (-3! + 4!) \times 4!) = 2^2 \times (-2^2 + 3^3 + 4^4) - 4^4$$
$$\mathbf{861} := -1! \times 1! - 2! + 3! \times (4! + 5!) = -(1^1 + 1^1) \times 2^2 \times (3^3 + 4^4) + 5^5$$
$$\mathbf{862} := 1! \times 1! \times 3! \times 3! \times 4! - 2! = -(1^1 + 1^1) \times 3^3 + (-3^3 + 4^4) \times 2^2$$
$$\mathbf{868} := 1! + 1! + 4! \times 3! \times 3! + 2! = (-(1^1 + 1^1) \times 4^4 + 3^3 \times 3^3) \times 2^2$$
$$\mathbf{875} := -1! \times 1! + (2! + 4! \times 3!) \times 3! = -1^1 - (1^1 - 2^2) \times (4^4 + 3^3) + 3^3$$
$$\mathbf{876} := (1! \times 2! + 3! \times 4!) \times 3! = (-1^1 + 2^2) \times (3^3 + 4^4) + 3^3$$
$$\mathbf{877} := 1! + 3! \times (2! + 3! \times 4!) = (1^1 \times 3^3 - 2^2) \times 3^3 + 4^4$$
$$\mathbf{878} := 1! + 1! + 3! \times (2! + 3! \times 4!) = 1^1 \times 1^1 + (3^3 - 2^2) \times 3^3 + 4^4$$
$$\mathbf{881} := -1! + (1! + 3! \times 4! + 2!) \times 3! = (-1^1 - 1^1 - 3^3 + 4^4) \times 2^2 - 3^3$$
$$\mathbf{887} := 1! + (1! + 3! \times 3!) \times 4! - 2! = -1^1 - 1^1 - 3^3 + (-3^3 + 4^4) \times 2^2$$
$$\mathbf{888} := ((1! + 4!) \times 3! - 2!) \times 3! = -1^1 + (4^4 - 3^3) \times 2^2 - 3^3$$
$$\mathbf{889} := 1! + (1! + 2! \times 3! + 4!) \times 4! = (1^1 \times 1^1 + 2^2) \times (-3^3 + 4^4) - 4^4$$
$$\mathbf{890} := (1! + 3! \times 3!) \times 4! + 2! = 1^1 - 3^3 + (-3^3 + 4^4) \times 2^2$$
$$\mathbf{891} := 1! + (1! + 3! \times 3!) \times 4! + 2! = 1^1 + 1^1 - 3^3 - (3^3 - 4^4) \times 2^2$$
$$\mathbf{894} := (1! + (1! + 4!) \times 3! - 2!) \times 3! = 1^1 + (1^1 + 4^4 - 3^3) \times 2^2 - 3^3$$
$$\mathbf{911} := -1! \times 1! + (2! + 3!) \times (-3! + 5!) = (-1^1 + (1^1 - 2^2) \times 3^3) \times 3^3 + 5^5$$
$$\mathbf{912} := (1! + (1! + 2!) \times 3!) \times 4! \times 2! = 1^1 \times 1^1 \times 2^2 \times (-3^3 + 4^4) - 2^2$$
$$\mathbf{918} := -(1! + 1!) \times (5! - 4! \times 4!) + 3! = -(1^1 + 1^1) \times 5^5 + 4^4 + 4^4 \times 3^3$$
$$\mathbf{923} := -1! + (1! + 3!) \times 3! \times (-2! + 4!) = (1^1 + 1^1 + 3^3) \times (3^3 - 2^2) + 4^4$$
$$\mathbf{929} := -1! + (-1! + (2! + 4!) \times 3!) \times 3! = -1^1 + (-1^1 + 2^2) \times (4^4 + 3^3 + 3^3)$$
$$\mathbf{930} := (-1! + (2! + 4!) \times 3!) \times 3! = (-1^1 + 2^2) \times (4^4 + 3^3 + 3^3)$$
$$\mathbf{931} := 1! - (1! - (2! + 4!) \times 3!) \times 3! = 1^1 - (1^1 - 2^2) \times (4^4 + 3^3 + 3^3)$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
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$$\begin{aligned}
\mathbf{935} &:= -1! \times 1! + 3! \times 3! \times (2! + 4!) && = -(1^1 + 1^1 - 3^3) \times 3^3 + 2^2 + 4^4 \\
\mathbf{938} &:= 2! + 3! \times (3! \times 3! + 5!) && = (-2^2 \times 3^3 + 3^3) \times 3^3 + 5^5 \\
\mathbf{941} &:= -1! + (1! + (2! + 4!) \times 3!) \times 3! && = -1^1 - 1^1 + 2^2 \times (4^4 - 3^3) + 3^3 \\
\mathbf{942} &:= (1! + (2! + 4!) \times 3!) \times 3! && = -1^1 + 2^2 \times (4^4 - 3^3) + 3^3 \\
\mathbf{943} &:= 1! + (1! + (2! + 4!) \times 3!) \times 3! && = 1^1 \times 1^1 \times 2^2 \times (4^4 - 3^3) + 3^3 \\
\mathbf{948} &:= (1! + 1! + 3! \times (4! + 2!)) \times 3! && = 1^1 + (1^1 - 3^3 + 4^4) \times 2^2 + 3^3 \\
\mathbf{950} &:= (1! \times 1! + 4!) \times (3! \times 3! + 2!) && = -(1^1 + 1^1) \times (4^4 - 3^3 \times 3^3) + 2^2 \\
\mathbf{959} &:= (-1! + (-1! + 4!) \times 3!) \times (1! + 3!) && = 1^1 \times 1^1 + 4^4 + (3^3 - 1^1) \times 3^3 \\
\mathbf{960} &:= (1! + 1! + 3!) \times (3! - 1!) \times 4! && = 1^1 + 1^1 + 3^3 \times (3^3 - 1^1) + 4^4 \\
\mathbf{961} &:= 1! + ((1! + 3!) \times 3! - 2!) \times 4! && = -1^1 - (1^1 - 3^3) \times 3^3 + 2^2 + 4^4 \\
\mathbf{962} &:= (1! + 3! \times 3!) \times (2! + 4!) && = (-1^1 + 3^3) \times 3^3 + 2^2 + 4^4 \\
\mathbf{963} &:= 1! + (1! + 3! \times 3!) \times (2! + 4!) && = 1^1 - (1^1 - 3^3) \times 3^3 + 2^2 + 4^4 \\
\mathbf{966} &:= (1! \times 1! - 4!) \times (3! - 4! \times 2!) && = (1^1 + 1^1) \times (4^4 - 3^3 + 4^4) - 2^2 \\
\mathbf{966} &:= (-1! + (1! + 4! + 2!) \times 3!) \times 3! && = (-1^1 \times 1^1 + 4^4) \times 2^2 - 3^3 - 3^3 \\
\mathbf{968} &:= (1! - (1! - 3!) \times 4!) \times (2! + 3!) && = -1^1 - 1^1 - 3^3 + 4^4 \times 2^2 - 3^3 \\
\mathbf{971} &:= -1! + (1! + 2! + 4!) \times 3! \times 3! && = 1^1 \times 1^1 + 2^2 \times 4^4 - 3^3 - 3^3 \\
\mathbf{972} &:= (1! \times 1! + 2! + 4!) \times 3! \times 3! && = 1^1 + 1^1 + 2^2 \times 4^4 - 3^3 - 3^3 \\
\mathbf{973} &:= 1! + (1! + 4! + 2!) \times 3! \times 3! && = -1^1 + (1^1 + 4^4) \times 2^2 - 3^3 - 3^3 \\
\mathbf{978} &:= (1! + (1! + 4! + 2!) \times 3!) \times 3! && = (1^1 + 1^1 + 4^4) \times 2^2 - 3^3 - 3^3 \\
\mathbf{982} &:= (-1! + (1! + 3!) \times 3!) \times 4! - 2! && = 1^1 \times 1^1 + 3^3 \times 3^3 + 4^4 - 2^2 \\
\mathbf{984} &:= ((1! + 3!) \times 3! - 1!) \times 4! && = (1^1 + 3^3) \times (3^3 - 1^1) + 4^4 \\
\mathbf{985} &:= 1! - (1! - (1! + 3!) \times 3!) \times 4! && = (1^1 + 1^1 - 1^1) \times 3^3 \times 3^3 + 4^4 \\
\mathbf{988} &:= (1! + 1! + 3! \times 3!) \times (2! + 4!) && = -1^1 \times 1^1 + 3^3 \times 3^3 + 2^2 + 4^4 \\
\mathbf{997} &:= 1! + ((1! + 3!) \times 4! - 2!) \times 3! && = -(1^1 + 1^1) \times 3^3 + 4^4 \times 2^2 + 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{1000} &:= -1! + (-1! + 4! \times 3!) \times (1! + 3!) && = (1^1 + 1^1) \times (-4^4 + (3^3 + 1^1) \times 3^3) \\
\mathbf{1007} &:= 1! + (1! + 3!) \times 3! \times 4! - 2! && = -1^1 + (1^1 + 3^3) \times 3^3 + 4^4 - 2^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{1008} &:= ((4! - 2!) \times 4! - 4!) \times 2! && = (4^4 - 2^2 - 4^4 + 4^4) \times 2^2 \\
&:= (2! + 2! + 4!) \times 3! \times 3! && = 2^2 \times (-2^2 + 4^4) - 3^3 + 3^3 \\
&:= 2! \times (2! \times (5! + 5!) + 4!) && = 2^2 \times (-2^2 - 5^5 + 5^5 + 4^4)
\end{aligned}$$

$$\begin{aligned}
\mathbf{1009} &:= 1! - (1! - 2! - 3!) \times 3! \times 4! && = -1^1 + (1^1 + 2^2) \times (-3^3 - 3^3 + 4^4) \\
\mathbf{1010} &:= 3! \times 4! \times (3! + 1!) + 2! && = (-3^3 + 4^4 - 3^3) \times (1^1 + 2^2) \\
\mathbf{1012} &:= (4! - 1!) \times 2! \times (4! - 2!) && = 4^4 - (1^1 - 2^2) \times (4^4 - 2^2) \\
\mathbf{1013} &:= -1! + (1! + 3!) \times 3! \times 4! + 3! && = 1^1 \times 1^1 + 3^3 \times 3^3 + 4^4 + 3^3 \\
\mathbf{1014} &:= -1! + (1! + 3!) \times (1! + 3! \times 4!) && = 1^1 + 1^1 + (3^3 + 1^1) \times 3^3 + 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
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$$\begin{aligned}
\mathbf{1016} &:= (1! + (1! + 3!) \times 4!) \times 3! + 2! && = (-1^1 - 1^1 - 3^3 + 4^4 + 3^3) \times 2^2 \\
\mathbf{1020} &:= 3! \times (4! \times (3! + 1!) + 2!) && = (3^3 + 4^4 - 3^3 - 1^1) \times 2^2 \\
\mathbf{1021} &:= -1! + (1! + 3!) \times (3! \times 4! + 2!) && = 1^1 - (1^1 + 3^3 - 3^3 - 4^4) \times 2^2 \\
\mathbf{1022} &:= (1! \times 1! + 3!) \times (2! + 3! \times 4!) && = -1^1 - 1^1 + (3^3 + 2^2 - 3^3) \times 4^4 \\
\\
\mathbf{1023} &:= 1! + (1! + 3!) \times (2! + 3! \times 4!) && = -1^1 \times 1^1 + (3^3 + 2^2 - 3^3) \times 4^4 \\
&:= 1! + (1! + 3!) \times (2! + 4! + 5!) && = -(1^1 + 1^1) \times (3^3 + 2^2 \times 4^4) + 5^5 \\
\\
\mathbf{1026} &:= (1! + (1! + 3!) \times 4! + 2!) \times 3! && = 1^1 + 1^1 + 3^3 + 4^4 \times 2^2 - 3^3 \\
\mathbf{1032} &:= (-1! \times 1! + 2! \times (-2! + 4!)) \times 4! && = (-1^1 - 1^1 + 2^2) \times (2^2 + 4^4 + 4^4) \\
\mathbf{1034} &:= (1! - (1! + 1!) \times 4!) \times (2! - 4!) && = (1^1 + 1^1) \times (1^1 + 4^4 + 2^2 + 4^4) \\
\mathbf{1035} &:= 1! + (1! - 2! \times 4!) \times (2! - 4!) && = -1^1 - (1^1 - 2^2) \times (4^4 + 2^2) + 4^4 \\
\mathbf{1038} &:= (1! + (1! + 3!) \times 3!) \times 4! + 3! && = -1^1 + (1^1 + 3^3) \times 3^3 + 4^4 + 3^3 \\
\mathbf{1050} &:= (1! + 1!) \times (-2! + 4!) \times 4! - 3! && = -1^1 + (1^1 + 2^2) \times 4^4 - 4^4 + 3^3 \\
\\
\mathbf{1051} &:= 1! - (1! + 4!) \times (3! - 4! - 4!) && = (1^1 + 1^1) \times 4^4 + 3^3 + 4^4 + 4^4 \\
&:= 1! + (1! + 4!) \times (4! \times 2! - 3!) && = ((1^1 + 1^1) \times 4^4 - 4^4) \times 2^2 + 3^3 \\
\mathbf{1056} &:= (-(1! + 1! + 2!) + 2! \times 4!) \times 4! && = (1^1 + 1^1) \times (2^2 \times 2^2 + 4^4 + 4^4) \\
\mathbf{1078} &:= 3! \times 3! \times (3! + 4!) - 2! && = -3^3 - 3^3 + (3^3 + 4^4) \times 2^2 \\
\mathbf{1079} &:= -1! + ((1! + 4!) \times 4!) \times 2! - 5! && = 1^1 + 1^1 - (4^4 + 4^4) \times 2^2 + 5^5 \\
\mathbf{1080} &:= (1! \times 1! + 4!) \times 4! \times 2! - 5! && = -1^1 + (1^1 - 4^4 - 4^4) \times 2^2 + 5^5 \\
\mathbf{1081} &:= 1! + (1! + 4!) \times 4! \times 2! - 5! && = (1^1 \times 1^1 - 4^4 - 4^4) \times 2^2 + 5^5 \\
\mathbf{1082} &:= (1! + (1! + 4!) \times 4!) \times 2! - 5! && = 1^1 + (1^1 - 4^4 - 4^4) \times 2^2 + 5^5 \\
\mathbf{1086} &:= -(1! + (1! - 4!) \times 2!) \times 4! + 3! && = (1^1 + 1^1) \times (4^4 + 2^2 + 4^4 + 3^3) \\
\mathbf{1091} &:= -1! + (1! + 3!) \times 3! \times (2! + 4!) && = -1^1 - 1^1 + 3^3 \times (3^3 + 2^2) + 4^4 \\
\mathbf{1092} &= (1! + 3!) \times 3! \times (2! + 4!) && = -1^1 + 3^3 \times (3^3 + 2^2) + 4^4 \\
\mathbf{1103} &:= -1! + (-1! + 4!) \times 3! \times (2! + 3!) && = -1^1 - 1^1 + (4^4 + 3^3) \times 2^2 - 3^3 \\
\\
\mathbf{1104} &:= (3! + 2!) \times 3! \times (4! - 1!) && = -3^3 + 2^2 \times (3^3 + 4^4) - 1^1 \\
&:= 2! \times (4! \times (4! - 3!) + 5!) && = -2^2 \times (4^4 + 4^4) + 3^3 + 5^5 \\
\\
\mathbf{1105} &:= 1! + (-1! + 4!) \times 3! \times (2! + 3!) && = (1^1 \times 1^1 \times 4^4 + 3^3) \times 2^2 - 3^3 \\
\mathbf{1110} &:= 1! + (-1! + 4!) \times (3! + 2!) \times 3! && = 1^1 + (1^1 + 4^4 + 3^3) \times 2^2 - 3^3 \\
\mathbf{1151} &:= -1! \times 1! + 3! \times 4! \times (2! + 3!) && = (-1^1 - 1^1 + 3^3 + 4^4) \times 2^2 + 3^3 \\
\mathbf{1154} &:= 1! + 1! + 3! \times 4! \times (2! + 3!) && = -1^1 + (-1^1 + 3^3 + 4^4) \times 2^2 + 3^3 \\
\mathbf{1156} &:= 4! \times 2! \times 4! + 3! - 2! && = 4^4 - (2^2 - 4^4 + 3^3) \times 2^2 \\
\mathbf{1157} &:= -1! + (1! + (2! + 3!) \times 4!) \times 3! && = -1^1 - 1^1 + 2^2 \times (3^3 + 4^4) + 3^3
\end{aligned}$$

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$$\mathbf{1158} := (1! + (2! + 3!) \times 4!) \times 3! \qquad = -1^1 + 2^2 \times (3^3 + 4^4) + 3^3$$
$$\mathbf{1168} := 2! \times (2! + 3! + 4! \times 4!) \qquad = -2^2 - 2^2 \times (3^3 - 4^4) + 4^4$$
$$\mathbf{1170} := (1! \times 1! + 4! \times 2!) \times 4! - 3! \qquad = -1^1 - 1^1 + 4^4 + 2^2 \times (4^4 - 3^3)$$
$$\mathbf{1171} := 1! + (1! + 4! \times 2!) \times 4! - 3! \qquad = -1^1 \times 1^1 + 4^4 + 2^2 \times (4^4 - 3^3)$$
$$\mathbf{1175} := -1! + (1! + 3!) \times (1! + 3!) \times 4! \qquad = ((1^1 + 1^1) \times 3^3 - 1^1) \times 3^3 - 4^4$$
$$\mathbf{1176} := 2! \times (2! \times 3! + 4! \times 4!) \qquad = 2^2 - 2^2 \times (3^3 - 4^4) + 4^4$$
$$\mathbf{1188} := (4! - 2!) \times (4! \times 2! + 3!) \qquad = 4^4 + 2^2 \times (4^4 + 2^2 - 3^3)$$
$$\mathbf{1200} := (3! - (2! - 4!) \times 2!) \times 4! \qquad = (3^3 \times 2^2 + 4^4) \times 2^2 - 4^4$$
$$\mathbf{1230} := (-1! + (1! + 3!) \times 3!) \times (3! + 4!) \qquad = 1^1 + (1^1 + 3^3 + 3^3) \times 3^3 - 4^4$$
$$\mathbf{1248} := (2! + 2! + 2! \times 4!) \times 4! \qquad = -2^2 \times (2^2 + 2^2 - 4^4) + 4^4$$
$$\mathbf{1249} := 1! - ((1! - 4!) \times 2! - 3!) \times 4! \qquad = (-1^1 \times 1^1 + 4^4) \times 2^2 - 3^3 + 4^4$$
$$\mathbf{1254} := (1! + 1!) \times (2! + 4!) \times 4! + 3! \qquad = 1^1 \times 1^1 + 2^2 \times 4^4 + 4^4 - 3^3$$
$$\mathbf{1271} := -1! + (1! + (4! + 2!) \times 2!) \times 4! \qquad = -1^1 - (1^1 - 4^4) \times 2^2 - 2^2 + 4^4$$
$$\mathbf{1272} := (1! + (4! + 2!) \times 2!) \times 4! \qquad = -(1^1 - 4^4) \times 2^2 - 2^2 + 4^4$$
$$\mathbf{1273} := 1! + (1! + (4! + 2!) \times 2!) \times 4! \qquad = 1^1 - (1^1 - 4^4) \times 2^2 - 2^2 + 4^4$$
$$\mathbf{1274} := (1! \times 1! + 2! \times 4!) \times (2! + 4!) \qquad = -1^1 - 1^1 - 2^2 + 4^4 + (2^2 \times 4^4)$$
$$\mathbf{1275} := 1! + (1! + 2! \times 4!) \times (2! + 4!) \qquad = -1^1 \times 1^1 - 2^2 + 4^4 + 2^2 \times 4^4$$
$$\mathbf{1294} := (-1! + (1! + 4!) + 2!) \times 4! \times 2! \qquad = (-((1^1 + 1^1) - 4^4) + ((2^2 + 4^4) \times 2^2))$$

$$\mathbf{1295} := -1! + (1! + 2! + 4!) \times 2! \times 4! \qquad = (-((1^1 \times 1^1) - ((2^2 + 4^4) \times 2^2)) + 4^4)$$
$$:= -1! + ((-1! + 3!) \times 3! + 4!) \times 4! \qquad = (((((1^1 + 1^1) + 3^3) \times 3^3) + 4^4) + 4^4)$$

$$\mathbf{1299} := (-1! + (((1! + 4!) \times 2!) \times (2! + 4!))) = -1^1 + (1^1 + 4^4 + 2^2) \times 2^2 + 4^4$$
$$\mathbf{1320} := (-1! - 1! + 4!) \times (3! + 4!) \times 2! \qquad = (1^1 + 1^1) \times (-4^4 + (-3^3 + 4^4) \times 2^2)$$
$$\mathbf{1390} := (-1! + (-1! + 4! + 3!) \times 4!) \times 2! \qquad = 1^1 + 1^1 + 4^4 + (3^3 + 4^4) \times 2^2$$
$$\mathbf{1391} := -1! + (-1! + 3! + 4!) \times 2! \times 4! \qquad = -1^1 + (1^1 + 3^3 + 4^4) \times 2^2 + 4^4$$
$$\mathbf{1392} := (4! - 1! + 3!) \times 2! \times 4! \qquad = (4^4 + 1^1 + 3^3) \times 2^2 + 4^4$$
$$\mathbf{1393} := 1! + (-1! + 3! + 4!) \times 2! \times 4! \qquad = 1^1 + (1^1 + 3^3 + 4^4) \times 2^2 + 4^4$$
$$\mathbf{1442} := 1! + 1! + 2! \times (3! + 4!) \times 4! \qquad = (1^1 + 1^1 + 2^2) \times (3^3 + 4^4) - 4^4$$
$$\mathbf{1451} := -1! \times 1! + 2! \times (3! + 3! \times 5!) \qquad = -(1^1 + 1^1) \times (2^2 + 3^3) \times 3^3 + 5^5$$
$$\mathbf{1458} := 3! + 3! + 3! + 6! + 6! \qquad = (3^3 + 3^3) \times 3^3 + 6^6 - 6^6$$
$$\mathbf{1511} := -1! + (1! + 3!) \times 3! \times 3! \times 3! \qquad = -1^1 + (1^1 + 3^3 + 3^3) \times 3^3 + 3^3$$

$$\mathbf{1536} := (1! + 1! + 2!) \times 4! + 6! + 6! \qquad = (1^1 + 1^1 + 2^2) \times 4^4 + 6^6 - 6^6$$
$$:= (1! + 1! + 3!) \times (2! + 3!) \times 4! \qquad = (1^1 + 1^1 + 3^3 + 2^2 - 3^3) \times 4^4$$

$$\mathbf{1559} := -1! + (-1! + 3! + 2! + 3!) \times 5! \qquad = (-(1^1 + 1^1) \times 3^3 - 2^2) \times 3^3 + 5^5$$

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http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{1639} &:= 1! + (1! + 3! + 3!) \times (3! + 5!) && = -1^1 - (1^1 + 3^3 + 3^3) \times 3^3 + 5^5 \\
\mathbf{1666} &:= (1! + 1! + 3! + 3!) \times (-1! + 5!) && = -(1^1 + 1^1) \times 3^3 \times 3^3 - 1^1 + 5^5 \\
\mathbf{1668} &:= (1! + 1!) \times (-3! + (3! + 1!) \times 5!) && = -(1^1 + 1^1) \times 3^3 \times 3^3 + 1^1 + 5^5 \\
\mathbf{1715} &:= -1! + (-1! + 4! \times 3!) \times (3! + 3!) && = 1^1 \times 1^1 + 4^4 + (3^3 + 3^3) \times 3^3 \\
\mathbf{1716} &:= (1! + 1!) \times (-3! + 3! \times 3! \times 4!) && = 1^1 + 1^1 + (3^3 + 3^3) \times 3^3 + 4^4 \\
\mathbf{1724} &:= (-1! - 1! + 4! \times 3! \times 3!) \times 2! && = ((1^1 + 1^1) \times (4^4 - 3^3) - 3^3) \times 2^2 \\
\mathbf{1725} &:= -1! + (-1! + 3! \times 3! \times 4!) \times 2! && = -1^1 - (1^1 - 3^3) \times 3^3 + 4^4 \times 2^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{1726} &:= (3! + 3!) \times 3! \times 4! - 2! && = 3^3 \times 3^3 - 3^3 + 4^4 \times 2^2 \\
&:= (-1! + (3! \times 3!) \times 4!) \times 2! && = -(1^1 - 3^3) \times 3^3 + 4^4 \times 2^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{1727} &:= -1! \times 1! + 3! \times 3! \times 2! \times 4! && = 1^1 - (1^1 - 3^3) \times 3^3 + 2^2 \times 4^4 \\
\mathbf{1740} &:= (1! + 1!) \times (3! + 3! \times 3! \times 4!) && = -1^1 + (1^1 + 3^3 + 3^3) \times 3^3 + 4^4 \\
\mathbf{1751} &:= -1! + (1! + 3! \times 3! \times 2!) \times 4! && = -1^1 - 1^1 + 3^3 \times 3^3 + 2^2 \times 4^4 \\
\mathbf{1752} &:= (1! + 3! \times 3! \times 2!) \times 4! && = -1^1 + 3^3 \times 3^3 + 2^2 \times 4^4 \\
\mathbf{1776} &:= (2! + 4! + 2! \times 4!) \times 4! && = 2^2 \times (4^4 - 2^2 + 4^4) - 4^4 \\
\mathbf{1778} &:= (1! + (1! + 3! \times 3!) \times 4!) \times 2! && = (1^1 + 1^1) \times (-3^3 + (-3^3 + 4^4) \times 2^2) \\
\mathbf{1800} &:= (1! + (1! + 2!) \times 4! + 2!) \times 4! && = (1^1 + 1^1) \times (2^2 \times 4^4 + 2^2) - 4^4 \\
\mathbf{1847} &:= -1! + (1! + 2!) \times 4! \times 4! + 5! && = 1^1 + 1^1 - 2^2 \times 4^4 - 4^4 + 5^5 \\
\mathbf{1872} &:= 2! \times 4! \times 4! + 3! \times 5! && = -2^2 \times 4^4 - 4^4 + 3^3 + 5^5 \\
\mathbf{2016} &:= (1! + 1!) \times 4! \times (4! \times 2! - 3!) && = -1^1 + (-1^1 + 4^4 + 4^4) \times 2^2 - 3^3 \\
\mathbf{2073} &:= -1! + (-1! - 3! + 4!) \times (2! + 5!) && = -1^1 \times 1^1 - 3^3 - 4^4 \times 2^2 + 5^5 \\
\mathbf{2075} &:= 1! - (1! + 3! - 4!) \times (2! + 5!) && = 1^1 \times 1^1 - 3^3 - 4^4 \times 2^2 + 5^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{2112} &:= (2! + 2!) \times 4! \times (4! - 2!) && = (2^2 \times 2^2 + 4^4 + 4^4) \times 2^2 \\
&:= (3! + 2!) \times (4! + 2! \times 5!) && = 3^3 - (2^2 + 4^4) \times 2^2 + 5^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{2126} &:= 1! + 1! + (3! - 4!) \times (2! - 5!) && = -1^1 - 1^1 + 3^3 - 4^4 \times 2^2 + 5^5 \\
\mathbf{2136} &:= (2! \times 3! + 3!) \times 5! - 4! && = -2^2 - 3^3 \times 3^3 + 5^5 - 4^4 \\
\mathbf{2142} &:= (-1! \times 1! + 4! - 3!) \times (3! + 5!) && = 1^1 + 1^1 - 4^4 - 3^3 \times 3^3 + 5^5 \\
\mathbf{2160} &:= ((2! + 2!) \times 4! - 3!) \times 4! && = 2^2 + 2^2 \times (4^4 + 3^3 + 4^4) \\
\mathbf{2166} &:= 1! \times 1! \times 3! - (3! - 4!) \times 5! && = -1^1 + (1^1 - 3^3) \times 3^3 - 4^4 + 5^5 \\
\mathbf{2167} &:= 1! + 3! - (3! - 4!) \times 5! && = (1^1 - 3^3) \times 3^3 - 4^4 + 5^5 \\
\mathbf{2168} &:= 1! + 1! + 3! - (3! - 4!) \times 5! && = 1^1 + (1^1 - 3^3) \times 3^3 - 4^4 + 5^5 \\
\mathbf{2296} &:= (1! + 1! + 2!) \times (-2! + 4! \times 4!) && = (1^1 + 1^1) \times (-2^2 + 2^2 \times 4^4) + 4^4 \\
\mathbf{2300} &:= 2! \times (-2! + (4! + 4!) \times 4!) && = -2^2 + 2^2 \times (4^4 + 4^4) + 4^4 \\
\mathbf{2302} &:= -1! - 1! + 2! \times 4! \times (4! + 4!) && = -1^1 - 1^1 + 2^2 \times (4^4 + 4^4) + 4^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{2303} := -1! + (2! + 2!) \times 4! \times 4! = -1^1 + (2^2 + 2^2) \times 4^4 + 4^4$$
$$\mathbf{2317} := -1! + (1! - 3! + 4!) \times (2! + 5!) = ((1^1 + 1^1) \times 3^3 - 4^4) \times 2^2 + 5^5$$
$$\mathbf{2349} := -1! + (1! + 4!) \times (-2! - 4! + 5!) = -(1^1 + 1^1 + 4^4) \times 2^2 + 4^4 + 5^5$$
$$\mathbf{2352} := 1! \times 1! \times 4! \times (2! - 4! + 5!) = -1^1 - (1^1 + 4^4) \times 2^2 + 4^4 + 5^5$$
$$\mathbf{2353} := 1! + 4! \times (2! - 4! + 5!) = -(1^1 + 4^4) \times 2^2 + 4^4 + 5^5$$
$$\mathbf{2354} := 1! + 1! + 4! \times (2! - 4! + 5!) = 1^1 - (1^1 + 4^4) \times 2^2 + 4^4 + 5^5$$
$$\mathbf{2360} := (1! + 1! + 2! - 4!) \times (2! - 5!) = -1^1 + (1^1 - 2^2) \times 4^4 + 2^2 + 5^5$$
$$\mathbf{2394} := (1! + (1! + 2!) \times 3!) \times (3! + 5!) = 1^1 + 1^1 - 2^2 - 3^3 \times 3^3 + 5^5$$
$$\mathbf{2399} := -1! + (1! - 3!) \times (-3! + 2!) \times 5! = -1^1 \times 1^1 - 3^3 \times 3^3 + 2^2 + 5^5$$
$$\mathbf{2400} := (2! - 3!) \times (1! - 3!) \times 5! = 2^2 - 3^3 \times 1^1 \times 3^3 + 5^5$$
$$\mathbf{2401} := 1! - (1! - 3!) \times (3! - 2!) \times 5! = 1^1 \times 1^1 - 3^3 \times 3^3 + 2^2 + 5^5$$
$$\mathbf{2544} := (-2! - 3! - 3! + 5!) \times 4! = -(2^2 + 3^3) \times 3^3 + 5^5 + 4^4$$
$$\mathbf{2586} := (-1! + (1! + 2!) \times (4! + 5!)) \times 3! = (1^1 + 1^1 - 2^2) \times 4^4 + 5^5 - 3^3$$
$$\mathbf{2590} := -2! + (-3! + 4!) \times (4! + 5!) = 2^2 - 3^3 - 4^4 - 4^4 + 5^5$$
$$\mathbf{2594} := 1! + 1! - 4! \times (2! \times 3! - 5!) = (1^1 + 1^1) \times (-4^4 + 2^2) - 3^3 + 5^5$$
$$\mathbf{2597} := 1! \times 1! + (2! - 4!) \times (2! - 5!) = -(1^1 + 1^1) \times (2^2 + 4^4 + 2^2) + 5^5$$
$$\mathbf{2614} := -1! - 1! + (-2! + 4!) \times 5! - 4! = 1^1 + (1^1 - 2^2) \times 4^4 + 5^5 + 4^4$$
$$\mathbf{2615} := -1! \times 1! - 4! + (-2! + 4!) \times 5! = -1^1 - 1^1 - 4^4 + 2^2 - 4^4 + 5^5$$
$$\mathbf{2616} := (-1! \times 2! + 4!) \times 5! - 4! = -1^1 + 2^2 - 4^4 + 5^5 - 4^4$$
$$\mathbf{2617} := 1! - (2! - 4!) \times 5! - 4! = 1^1 \times 2^2 - 4^4 + 5^5 - 4^4$$
$$\mathbf{2618} := 1! + 1! - 4! + (4! - 2!) \times 5! = 1^1 \times 1^1 - 4^4 - 4^4 + 2^2 + 5^5$$
$$\mathbf{2619} := 1! \times 1! + (2! - 4!) \times (1! - 5!) = (1^1 + 1^1) \times (2^2 - 4^4 - 1^1) + 5^5$$
$$\mathbf{2620} := 1! + 1! + (2! - 4!) \times (1! - 5!) = (1^1 + 1^1) \times (2^2 - 4^4) - 1^1 + 5^5$$
$$\mathbf{2632} := -1! - 1! + (4! - 2!) \times 5! - 3! = -(1^1 + 1^1) \times (4^4 + 2^2) + 5^5 + 3^3$$
$$\mathbf{2636} := 1! + 1! + (4! - 2!) \times 5! - 3! = -(1^1 + 1^1) \times 4^4 - 2^2 + 5^5 + 3^3$$
$$\mathbf{2640} := (1! + 1! + 2! + 4! - 3!) \times 5! = (1^1 + 1^1 - 2^2) \times 4^4 + 3^3 + 5^5$$
$$\mathbf{2644} := -1! - 1! + (4! - 2!) \times 5! + 3! = -(1^1 + 1^1) \times 4^4 + 2^2 + 5^5 + 3^3$$
$$\mathbf{2648} := 1! + 1! - (2! - 4!) \times 5! + 3! = (1^1 + 1^1) \times (2^2 - 4^4) + 5^5 + 3^3$$
$$\mathbf{2652} := (-1! - 1! + 4!) \times 5! + 3! + 3! = 1^1 \times 1^1 \times 4^4 + 5^5 - 3^3 \times 3^3$$
$$\mathbf{2721} := 1! - (1! - 4!) \times (5! - 2!) + 3! = -(1^1 + 1^1) \times 4^4 + 5^5 + 2^2 \times 3^3$$
$$\mathbf{2733} := -1! \times 1! - 2! + (-3! + 5!) \times 4! = -1^1 - (1^1 + 2^2) \times 3^3 + 5^5 - 4^4$$
$$\mathbf{2735} := 1! \times 1! - 2! - (3! - 5!) \times 4! = 1^1 - (1^1 + 2^2) \times 3^3 + 5^5 - 4^4$$
$$\mathbf{2736} := 3! \times (-4! + (-2! + 3!) \times 5!) = -3^3 + 4^4 \times (-2^2 + 3^3) - 5^5$$
$$\mathbf{2759} := -1! + (-1! + 2! - 3! + 5!) \times 4! = -1^1 - 1^1 - 2^2 \times 3^3 + 5^5 - 4^4$$

$$\mathbf{2761} := 1! - (1! + 3! - 3! - 4!) \times 5! = -(1^1 + 1^1) \times (3^3 + 3^3) - 4^4 + 5^5$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$:= 1! - (1! - 5! + 3! - 2!) \times 4!$ $= -1^1 - 1^1 - 5^5 + (3^3 - 2^2) \times 4^4$

2763 $:= -1! - (1! - 4!) \times 5! - 2! + 3!$ $= 1^1 + 1^1 - 4^4 + 5^5 - 2^2 \times 3^3$
2785 $:= 1! \times 1! + 4! \times (2! - 3! + 5!)$ $= -1^1 + (1^1 + 4^4) \times (-2^2 + 3^3) - 5^5$
2786 $:= 1! + 1! + 4! \times (2! - 3! + 5!)$ $= (1^1 \times 1^1 + 4^4) \times (-2^2 + 3^3) - 5^5$
2790 $:= 3! + (5! - 3! + 2!) \times 4!$ $= 3^3 - 5^5 + (3^3 - 2^2) \times 4^4$
2807 $:= -1! + (1! + 2! - 3! + 5!) \times 4!$ $= -(1^1 + 1^1) \times (2^2 + 3^3) + 5^5 - 4^4$
2836 $:= -1! - 1! + 3! + 4! \times (-2! + 5!)$ $= -1^1 - 1^1 - 3^3 - 4^4 - 2^2 + 5^5$
2840 $:= 1! + 1! - 4! \times (2! - 5!) + 3!$ $= 1^1 + 1^1 - 4^4 - 2^2 + 5^5 - 3^3$
2842 $:= -1! - 1! - 3! \times 3! + 4! \times 5!$ $= -(1^1 + 1^1) \times 3^3 + 3^3 - 4^4 + 5^5$
2844 $:= (1! + 1!) \times 3! - (2! - 5!) \times 4!$ $= -1^1 - 1^1 - 3^3 + 2^2 + 5^5 - 4^4$
2845 $:= 1! - (1! - 5!) \times 4! - 2! \times 3!$ $= -1^1 \times 1^1 + 5^5 - 4^4 + 2^2 - 3^3$
2847 $:= -1! + (1! + 4!) \times (5! - 3!) - 2!$ $= 1^1 \times 1^1 - 4^4 + 5^5 - 3^3 + 2^2$
2848 $:= (1! \times 1! + 4!) \times (-3! + 5!) - 2!$ $= 1^1 + 1^1 - 4^4 - 3^3 + 5^5 + 2^2$
2850 $:= (1! \times 1! - 2! - 4!) \times (3! - 5!)$ $= (1^1 + 1^1) \times 2^2 - 4^4 - 3^3 + 5^5$
2851 $:= -1! + (-1! + 4!) \times (2! + 2! + 5!)$ $= -1^1 - 1^1 - 4^4 - 2^2 \times 2^2 + 5^5$
2852 $:= (4! - 1!) \times (2! + 2! + 5!)$ $= -4^4 - 1^1 - 2^2 \times 2^2 + 5^5$
2853 $:= 1! + (-1! + 4!) \times (2! + 2! + 5!)$ $= -1^1 \times 1^1 \times 4^4 - 2^2 \times 2^2 + 5^5$
2854 $:= -2! + (-2! + 5! + 1!) \times 4!$ $= -2^2 \times 2^2 + 5^5 + 1^1 - 4^4$
2855 $:= -1! + (-1! - 2! + 2! + 5!) \times 4!$ $= 1^1 + 1^1 - 2^2 \times 2^2 + 5^5 - 4^4$
2856 $:= (-1! \times 1! + 2! - 2! + 5!) \times 4!$ $= -1^1 + (1^1 - 2^2) \times 2^2 + 5^5 - 4^4$
2856 $:= (1! + 1! + 2!) \times (-3! + 3! \times 5!)$ $= 1^1 - (1^1 + 2^2) \times (3^3 + 3^3) + 5^5$
2857 $:= 1! \times 1! + (1! - 2! + 5!) \times 4!$ $= -(1^1 + 1^1 + 1^1) \times 2^2 + 5^5 - 4^4$
2859 $:= 1! + (1! - 2! + 5!) \times 4! + 2!$ $= -1^1 - 1^1 - 2^2 + 5^5 - 4^4 - 2^2$
2860 $:= 2! + 2! + 4! \times (5! - 1!)$ $= -2^2 - 2^2 - 4^4 + 5^5 - 1^1$
2861 $:= 1! - (1! - 5!) \times 4! + 2! + 2!$ $= (1^1 \times 1^1) \times 5^5 - 4^4 - 2^2 - 2^2$
2867 $:= -1! \times 1! - 3! - 3! + 4! \times 5!$ $= -1^1 - 1^1 - 3^3 + 3^3 - 4^4 + 5^5$
2868 $:= -1! \times 3! + 3! + 4! \times 5!$ $= -1^1 - 3^3 + 3^3 - 4^4 + 5^5$
2869 $:= 1! - 3! - 3! + 4! \times 5!$ $= (-1^1 - 3^3 + 3^3) \times 4^4 + 5^5$
2870 $:= 1! + 1! - 3! - 3! + 4! \times 5!$ $= 1^1 \times 1^1 + 3^3 - 3^3 - 4^4 + 5^5$
2873 $:= -1! - (1! + 2!) \times 2! + 4! \times 5!$ $= (1^1 + 1^1) \times 2^2 - 2^2 - 4^4 + 5^5$
2874 $:= -(1! + 1! + 1!) \times 2! + 4! \times 5!$ $= 1^1 + 1^1 - 1^1 + 2^2 - 4^4 + 5^5$
2875 $:= -1! \times 1! - 2! - 2! + 4! \times 5!$ $= -1^1 - 1^1 + 2^2 + 2^2 - 4^4 + 5^5$
2876 $:= -1! \times 2! + 2! + 4! \times 5!$ $= -1^1 + 2^2 + 2^2 - 4^4 + 5^5$
2877 $:= 1! - 2! - 2! + 4! \times 5!$ $= 1^1 \times 2^2 + 2^2 - 4^4 + 5^5$
2878 $:= (1! - 2!) \times 2! + 4! \times 5!$ $= 1^1 + 2^2 + 2^2 - 4^4 + 5^5$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
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$$\begin{aligned}
\mathbf{2879} &:= -1! - 1! - 1! + 2! + 4! \times 5! && = (1^1 + 1^1) \times (1^1 + 2^2) - 4^4 + 5^5 \\
\mathbf{2880} &:= 2! \times (-2! \times 3! + 4!) \times 5! && = -2^2 \times 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2881} &:= 1! + 2! - 2! + 5! \times 4! && = (-1^1 + 2^2) \times 2^2 + 5^5 - 4^4 \\
\\
\mathbf{2882} &:= 2! - (2! - 3!) \times 3! \times 5! && = -(2^2 + 2^2) \times 3^3 - 3^3 + 5^5 \\
&:= 2! \times (1! + 2! \times 3! \times 5!) && = -(2^2 + 1^1 + 2^2) \times 3^3 + 5^5 \\
\\
\mathbf{2883} &:= -1! \times 1! + 2! + 2! + 4! \times 5! && = -1^1 - 1^1 + 2^2 \times 2^2 - 4^4 + 5^5 \\
\mathbf{2884} &:= 1! \times 2! + 2! + 4! \times 5! && = -1^1 + 2^2 \times 2^2 - 4^4 + 5^5 \\
\mathbf{2885} &:= 1! + 2! + 2! + 4! \times 5! && = (1^1 \times 2^2) \times 2^2 - 4^4 + 5^5 \\
\mathbf{2886} &:= (1! + 2!) \times 2! + 4! \times 5! && = 1^1 + 2^2 \times 2^2 - 4^4 + 5^5 \\
\mathbf{2887} &:= 1! + (1! + 2!) \times 2! + 4! \times 5! && = 1^1 + 1^1 + 2^2 \times 2^2 - 4^4 + 5^5 \\
\mathbf{2888} &:= -2! \times (2! - 3!) + 4! \times 5! && = -2^2 - 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2890} &:= 1! + 1! + 2! + 3! + 4! \times 5! && = -1^1 - 1^1 - 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2894} &:= 1! + 1! + 2! \times 3! + 4! \times 5! && = 1^1 + 1^1 - 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2896} &:= 2! \times (2! + 3!) + 4! \times 5! && = -2^2 + 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2897} &:= -1! - 3! + 4! \times (5! + 1!) && = 1^1 + 3^3 - 4^4 + 5^5 \times 1^1 \\
\mathbf{2898} &:= (1! \times 3! + 5!) \times (4! - 1!) && = 1^1 + 3^3 + 5^5 - 4^4 + 1^1 \\
\mathbf{2899} &:= 1! + (1! + 2!) \times 3! + 4! \times 5! && = -1^1 \times 1^1 + 2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2901} &:= 1! + (1! + 4!) \times ((2! - 3!) + 5!) && = 1^1 \times 1^1 - 4^4 + 2^2 + 3^3 + 5^5 \\
\mathbf{2904} &:= 2! \times 3! \times 2! + 4! \times 5! && = 2^2 + 3^3 + 2^2 - 4^4 + 5^5 \\
\mathbf{2908} &:= (1! + (1! + 5!) \times 3!) \times 2! \times 2! && = -1^1 \times 1^1 + 5^5 - 3^3 \times (2^2 + 2^2) \\
\mathbf{2910} &:= (1! + (1! + 5!) \times 2! \times 2!) \times 3! && = 1^1 \times 1^1 + 5^5 - (2^2 + 2^2) \times 3^3 \\
\mathbf{2912} &:= (4! + 2!) \times (-2! - 3! + 5!) && = -4^4 + 2^2 \times 2^2 + 3^3 + 5^5 \\
\\
\mathbf{2916} &:= 3! \times (3! + 2! \times (5! + 5!)) && = 3^3 \times 3^3 \times 2^2 + 5^5 - 5^5 \\
&:= (6! + 6!) \times 2! + 3! \times 3! && = (-6^6 + 6^6 + 2^2) \times 3^3 \times 3^3 \\
\\
\mathbf{2921} &:= -1! + (1! + 3!) \times 3! + 4! \times 5! && = -1^1 - 1^1 + 3^3 + 3^3 - 4^4 + 5^5 \\
\mathbf{2922} &:= (1! + 3!) \times 3! + 4! \times 5! && = -1^1 + 3^3 + 3^3 - 4^4 + 5^5 \\
\mathbf{2923} &:= 1! + (1! + 3!) \times 3! + 4! \times 5! && = 1^1 \times 1^1 \times 3^3 + 3^3 - 4^4 + 5^5 \\
\mathbf{2975} &:= -1! \times 1! + 4! \times (3! - 2! + 5!) && = -1^1 - 1^1 - 4^4 + 3^3 \times 2^2 + 5^5 \\
\mathbf{2978} &:= (1! + 1!) + 4! \times (5! - 2! + 3!) && = 1^1 \times 1^1 - 4^4 + 5^5 + 2^2 \times 3^3 \\
\mathbf{2999} &:= -1! + (1! + (2! + 2!) \times 3!) \times 5! && = -1^1 - 1^1 - 2^2 \times (2^2 + 3^3) + 5^5 \\
\mathbf{3000} &:= (1! + (2! + 2!) \times 3!) \times 5! && = -1^1 - 2^2 \times (2^2 + 3^3) + 5^5 \\
\mathbf{3001} &:= 1! + (1! + 3! \times 2! \times 2!) \times 5! && = -(1^1 \times 1^1 \times 3^3 + 2^2) \times 2^2 + 5^5 \\
\mathbf{3030} &:= 1! \times 1! \times 3! + 4! \times (3! + 5!) && = -1^1 + (-1^1 - 3^3 + 4^4) \times 3^3 - 5^5
\end{aligned}$$

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$$\begin{aligned}
\mathbf{3031} &:= 1! + 3! + 4! \times (3! + 5!) && = (-1^1 - 3^3 + 4^4) \times 3^3 - 5^5 \\
\mathbf{3032} &:= 1! + 1! + 3! + 4! \times (3! + 5!) && = 1^1 - (1^1 + 3^3 - 4^4) \times 3^3 - 5^5 \\
\mathbf{3071} &:= -1! + (1! + 3! + 5!) \times 4! + 4! && = -(1^1 + 1^1) \times 3^3 + 5^5 - 4^4 + 4^4 \\
\mathbf{3096} &:= (1! + 1! + 3! + 5!) \times 4! + 4! && = -1^1 - 1^1 - 3^3 + 5^5 - 4^4 + 4^4 \\
\mathbf{3102} &:= (2! + 4!) \times 5! + 3! - 4! && = 2^2 + 4^4 + 5^5 - 3^3 - 4^4 \\
\\
\mathbf{3119} &:= -1! + (1! + 3! + 3!) \times 2! \times 5! && = -1^1 - 1^1 - 3^3 + 3^3 - 2^2 + 5^5 \\
&:= 1! - (1! - 5!) \times (2! + 4!) + 4! && = -1^1 - 1^1 + 5^5 - 2^2 - 4^4 + 4^4 \\
&:= -1! \times 1! + 2! \times (5! + 6! + 6!) && = -1^1 - 1^1 - 2^2 + 5^5 - 6^6 + 6^6 \\
\\
\mathbf{3120} &:= 5! \times (3! \times 2! \times 2! + 2!) && = 5^5 + 3^3 - (2^2 + 2^2) \times 2^2 \\
&:= 1! \times 2! \times (5! + 6! + 6!) && = -1^1 - 2^2 + 5^5 - 6^6 + 6^6 \\
&:= 5! \times ((1! + 4!) \times 2! - 4!) && = 5^5 - 1^1 + 4^4 - 2^2 - 4^4 \\
&:= 5! \times 2! \times (3! + 3! + 1!) && = 5^5 - 2^2 + 3^3 - 3^3 - 1^1 \\
\\
\mathbf{3121} &:= 1! + 2! \times (5! + 6! + 6!) && = -1^1 \times 2^2 + 5^5 - 6^6 + 6^6 \\
\\
\mathbf{3122} &:= (1! + 5!) \times (2! + 4!) - 4! && = 1^1 + 5^5 - 2^2 + 4^4 - 4^4 \\
&:= (5! + 6! + 6! + 1!) \times 2! && = 5^5 + 6^6 - 6^6 + 1^1 - 2^2 \\
\\
\mathbf{3123} &:= 1! + (1! + 5!) \times (2! + 4!) - 4! && = 1^1 + 1^1 + 5^5 - 2^2 + 4^4 - 4^4 \\
&:= 1! + (1! + 5! + 6! + 6!) \times 2! && = 1^1 + 1^1 + 5^5 + 6^6 - 6^6 - 2^2 \\
\\
\mathbf{3150} &:= (1! + 1! + 4!) \times 5! + 3! + 4! && = -1^1 - 1^1 - 4^4 + 5^5 + 3^3 + 4^4 \\
\mathbf{3166} &:= -2! + 4! \times (3! + 3! + 5!) && = (2^2 + 4^4 - 3^3) \times 3^3 - 5^5 \\
\mathbf{3180} &:= 3! \times (4! \times (4! - 2!) + 2!) && = (3^3 - 4^4 + 4^4 \times 2^2) \times 2^2 \\
\mathbf{3240} &:= (1! + (1! + 2! \times 3!) \times 2!) \times 5! && = (1^1 \times 1^1 + 2^2) \times (3^3 - 2^2) + 5^5 \\
\mathbf{3274} &:= -1! - 1! + (4! + 2!) \times (3! + 5!) && = 1^1 \times 1^1 + 4^4 - 2^2 \times 3^3 + 5^5 \\
\mathbf{3275} &:= -1! \times 1! + (4! + 2!) \times (3! + 5!) && = 1^1 + 1^1 + 4^4 - 2^2 \times 3^3 + 5^5 \\
\mathbf{3342} &:= 3! + (3! \times 4!) \times 4! - 5! && = 3^3 \times 3^3 - 4^4 - 4^4 + 5^5 \\
\mathbf{3352} &:= (1! + 1! + 2!) \times (5! - 2! + 6!) && = (1^1 + 1^1 + 2^2 \times 5^5) \times 2^2 - 6^6 \\
\mathbf{3354} &:= (2! + 2! + 4!) \times 5! - 3! && = -2^2 + 2^2 + 4^4 + 5^5 - 3^3 \\
\mathbf{3358} &:= -1! - 1! + (-2! + 3! + 4!) \times 5! && = 1^1 \times 1^1 \times 2^2 - 3^3 + 4^4 + 5^5 \\
\\
\mathbf{3360} &:= 2! \times (2! \times 5! + 2! \times 6!) && = (2^2 + 2^2 \times 5^5) \times 2^2 - 6^6 \\
&:= (2! + 2!) \times 1! \times (5! + 6!) && = 2^2 \times 2^2 \times (1^1 + 5^5) - 6^6
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{3361} := 1! + (2! + 2! + 4!) \times 5! \qquad = -(1^1 + 2^2) \times 2^2 + 4^4 + 5^5$$
$$\mathbf{3362} := 2! - (2! - 3! - 4!) \times 5! \qquad = 2^2 + 2^2 - 3^3 + 4^4 + 5^5$$
$$\mathbf{3385} := 1! - (1! - 4! + 2! - 5!) \times 4! \qquad = (1^1 + 1^1) \times 4^4 + 2^2 + 5^5 - 4^4$$
$$\mathbf{3387} := -1! + (1! + 5!) \times (4! + 2! + 2!) \qquad = -1^1 - 1^1 + 5^5 + 4^4 + 2^2 + 2^2$$
$$\mathbf{3388} := (1! + 5!) \times (2! + 2! + 4!) \qquad = -1^1 + 5^5 + 2^2 + 2^2 + 4^4$$
$$\mathbf{3402} := (1! \times 1! + 2! + 4!) \times (3! + 5!) \qquad = -1^1 - 1^1 - 2^2 + 4^4 + 3^3 + 5^5$$
$$\mathbf{3403} := 1! + (1! + 2! + 4!) \times (3! + 5!) \qquad = -1^1 \times 1^1 - 2^2 + 4^4 + 3^3 + 5^5$$
$$\mathbf{3408} := -(1! + (1! - 4!) \times 3!) \times 4! + 5! \qquad = (1^1 + 1^1) \times 4^4 + 3^3 - 4^4 + 5^5$$
$$\mathbf{3416} := (2! + 5!) \times (4! + 3! - 2!) \qquad = 2^2 + 5^5 + 4^4 + 3^3 + 2^2$$
$$\mathbf{3421} := -1! + (1! - 4! - 3!) \times (2! - 5!) \qquad = (1^1 + 1^1) \times (4^4 - 3^3 \times 2^2) + 5^5$$

$$\mathbf{3462} := (1! \times 1! - 3! \times (4! - 5!)) \times 3! \qquad = (1^1 + 1^1) \times 3^3 + 4^4 + 5^5 + 3^3$$
$$:= 3! - 3! \times 3! \times (4! - 5!) \qquad = 3^3 + 3^3 + 3^3 + 4^4 + 5^5$$

$$\mathbf{3479} := -1! \times 1! + (4! + 3! - 1!) \times 5! \qquad = (1^1 + 1^1 - 4^4) \times (-3^3 + 1^1) - 5^5$$
$$\mathbf{3481} := 1! + (1! + 3! - 2! + 4!) \times 5! \qquad = (-1^1 - 1^1 + 3^3) \times 2^2 + 4^4 + 5^5$$
$$\mathbf{3503} := -1! - (1! - 4! - 3!) \times 5! + 4! \qquad = -1^1 + (-1^1 + 4^4) \times 3^3 - 5^5 - 4^4$$
$$\mathbf{3504} := 5! \times (3! - 1! + 4!) + 4! \qquad = -5^5 + 3^3 \times (-1^1 + 4^4) - 4^4$$
$$\mathbf{3505} := 1! - (1! - 4! - 3!) \times 5! + 4! \qquad = 1^1 - (1^1 - 4^4) \times 3^3 - 5^5 - 4^4$$
$$\mathbf{3596} := 1! + 1! - 3! + (3! + 4!) \times 5! \qquad = -1^1 - 1^1 + 3^3 \times 3^3 - 4^4 + 5^5$$
$$\mathbf{3597} := -1! \times 1! - 2! + (3! + 4!) \times 5! \qquad = (1^1 + 1^1) \times 2^2 \times 3^3 + 4^4 + 5^5$$
$$\mathbf{3599} := -1! + ((-1! + 3!) \times 3! + 5!) \times 4! \qquad = 1^1 \times 1^1 + 3^3 \times 3^3 + 5^5 - 4^4$$
$$\mathbf{3600} := (-2! + 2! + 5!) \times 4! + 6! \qquad = 2^2 \times 2^2 \times 5^5 + 4^4 - 6^6$$
$$\mathbf{3602} := 1! \times 1! \times 2! + (4! + 3!) \times 5! \qquad = (1^1 + 1^1) \times (-2^2 + 4^4) - 3^3 + 5^5$$
$$\mathbf{3625} := 1! - (1! - 3!) \times 3! \times 5! + 4! \qquad = (1^1 \times 1^1 + 3^3) \times 3^3 + 5^5 - 4^4$$
$$\mathbf{3660} := (1! \times 1! \times 4! + 3!) \times (2! + 5!) \qquad = (1^1 + 1^1) \times 4^4 + 3^3 - 2^2 + 5^5$$
$$\mathbf{3689} := (1! \times 1! + 3! + 4!) \times (-1! + 5!) \qquad = (1^1 + 1^1) \times (3^3 + 4^4 - 1^1) + 5^5$$
$$\mathbf{3690} := 1! - (1! + 4! + 3!) \times (1! - 5!) \qquad = (1^1 + 1^1) \times (4^4 + 3^3) - 1^1 + 5^5$$
$$\mathbf{3691} := 1! - (1! - 5!) \times (3! + 4!) + 5! \qquad = (1^1 + 1^1) \times (5^5 + 3^3 + 4^4) - 5^5$$
$$\mathbf{3720} := (1! + (1! - 2! + 3!) \times 3!) \times 5! \qquad = 1^1 - (((1^1 + 2^2) - 3^3) \times 3^3) + 5^5$$
$$\mathbf{3732} := ((4! + 2!) \times 4! - 2!) \times 3! \qquad = -4^4 + 2^2 \times (4^4 \times 2^2 - 3^3)$$
$$\mathbf{3781} := -1! + (1! + 3! + 4!) \times (2! + 5!) \qquad = -1^1 - 1^1 + 3^3 \times 4^4 - 2^2 - 5^5$$
$$\mathbf{3783} := 1! + (1! + 3! + 4!) \times (2! + 5!) \qquad = 1^1 \times 1^1 \times 3^3 \times 4^4 - 2^2 - 5^5$$
$$\mathbf{3840} := (1! + 1! \times 1! + 4! + 3!) \times 5! \qquad = -1^1 + (1^1 + 1^1 + 4^4) \times 3^3 - 5^5$$
$$\mathbf{3841} := 1! \times 1! + (2! + 4! + 3!) \times 5! \qquad = (-1^1 - 1^1 + 2^2 + 4^4) \times 3^3 - 5^5$$
$$\mathbf{3888} := (1! \times 1! + 4! + 2!) \times (4! + 5!) \qquad = -1^1 - (1^1 - 4^4) \times 2^2 - 4^4 + 5^5$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{3889} := 1! + (1! + 4! + 2!) \times (4! + 5!) = (1^1 + 1^1) \times 4^4 - 2^2 + 4^4 + 5^5$$
$$\mathbf{3960} := (-1! \times 1! - 2! + 3! \times 3!) \times 5! = -1^1 - 1^1 + (2^2 + 3^3) \times 3^3 + 5^5$$
$$\mathbf{3961} := 1! - (1! + 2! - 3! \times 3!) \times 5! = -1^1 \times 1^1 + (2^2 + 3^3) \times 3^3 + 5^5$$
$$\mathbf{4056} := (-1! - 1! + 3! \times 3!) \times 5! - 4! = -(1^1 + 1^1 - 3^3) \times 3^3 + 5^5 + 4^4$$
$$\mathbf{4284} := (3! \times 5! - 2!) \times 3! - 4! = 3^3 + 5^5 + 2^2 \times (3^3 + 4^4)$$
$$\mathbf{4326} := ((1! + 1!) \times 3! + 4!) \times 5! + 3! = (1^1 + 1^1 + 3^3) \times 4^4 - 5^5 + 3^3$$
$$\mathbf{4367} := 1! - (1! + 3! \times 3!) \times (2! - 5!) = (1^1 + 1^1) \times 3^3 \times (3^3 - 2^2) + 5^5$$
$$\mathbf{4368} := (2! + 5!) \times 4! + (2! \times 6!) = (2^2 \times 5^5 + 4^4) \times 2^2 - 6^6$$
$$\mathbf{4462} := -1! - 1! + 3! \times (4! + 3! \times 5!) = (-1^1 - 1^1 + 3^3 + 4^4) \times 3^3 - 5^5$$
$$\mathbf{4536} := (1! + 1!) \times (5! + 3!) \times (-3! + 4!) = (1^1 + 1^1) \times (5^5 - 3^3 \times 3^3) - 4^4$$
$$\mathbf{4608} := 2! \times (-2! + 3!) \times 4! \times 4! = (-2^2 - 2^2 + 3^3) \times 4^4 - 4^4$$
$$\mathbf{4799} := -1! + (-1! + 3!) \times (2! + 3!) \times 5! = (1^1 + 1^1) \times 3^3 \times (2^2 + 3^3) + 5^5$$
$$\mathbf{4800} := (1! + 1! + 2! + 3! \times 3!) \times 5! = (1^1 + 1^1) \times (2^2 - 3^3 \times 3^3 + 5^5)$$
$$\mathbf{5234} := (-1! + (1! - 5!) \times (2! - 4!)) \times 2! = (1^1 + 1^1) \times (5^5 + 2^2) - 4^4 \times 2^2$$
$$\mathbf{5280} := (1! + 1! - 3! + 4! + 4!) \times 5! = (1^1 + 1^1) \times (3^3 - 4^4 - 4^4 + 5^5)$$
$$\mathbf{5400} := (1! \times 1! + 4!) \times 3! \times 3! \times 3! = (-1^1 - 1^1 + 4^4 - 3^3 - 3^3) \times 3^3$$
$$\mathbf{5474} := (1! \times 1! - 5!) \times (2! - 4! - 4!) = (1^1 + 1^1) \times (5^5 - 2^2 - 4^4) - 4^4$$
$$\mathbf{5591} := -1! + (-1! + 5! \times 2! - 3!) \times 4! = -1^1 + (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4$$
$$\mathbf{5592} := (-1! + 5! \times 2! - 3!) \times 4! = (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4$$
$$\mathbf{5593} := 1! - (1! - 5! \times 2! + 3!) \times 4! = 1^1 + (1^1 + 5^5) \times 2^2 - 3^3 \times 4^4$$
$$\mathbf{5614} := -1! - 1! + 4! \times (-3! + 2! \times 5!) = -1^1 + (1^1 - 4^4) \times 3^3 + 2^2 \times 5^5$$
$$\mathbf{5616} := 1! \times 1! \times 4! \times (-3! + 2! \times 5!) = 1^1 + (1^1 - 4^4) \times 3^3 + 2^2 \times 5^5$$
$$\mathbf{5676} := (1! + 1!) \times (3! + 4! \times (5! - 2!)) = (1^1 + 1^1) \times (-3^3 - 4^4 + 5^5 - 2^2)$$
$$\mathbf{5706} := (-1! + (-1! + 5!) \times 4! - 2!) \times 2! = (1^1 + 1^1) \times (5^5 - 4^4 - 2^2 \times 2^2)$$
$$\mathbf{5707} := 1! - (1! - 5!) \times 4! \times 2! - 3! = (1^1 + 1^1) \times (5^5 - 4^4) - 2^2 - 3^3$$
$$\mathbf{5719} := 1! - (1! - 5!) \times 2! \times 4! + 3! = (1^1 + 1^1) \times (5^5 + 2^2 - 4^4) - 3^3$$
$$\mathbf{5734} := -2! - 4! + 4! \times (5! + 5!) = -2^2 - 4^4 - 4^4 + 5^5 + 5^5$$

$$\mathbf{5735} := -1! + (-1! + (1! + 1!) \times 5!) \times 4! = -1^1 + (1^1 + 1^1) \times (-1^1 + 5^5 - 4^4)$$
$$:= -1! \times 1! + 4! \times (5! \times 2! - 1!) = -(1^1 + 1^1) \times (4^4 - 5^5) + 2^2 + 1^1$$

$$\mathbf{5736} := (-1! + (1! + 1!) \times 5!) \times 4! = (1^1 + 1^1) \times (-1^1 + 5^5 - 4^4)$$
$$\mathbf{5737} := 1! - 4! + 4! \times (5! + 5!) = -1^1 - 4^4 - 4^4 + 5^5 + 5^5$$

$$\mathbf{5738} := 1! + 1! + 4! \times (5! - 1! + 5!) = -(1^1 + 1^1) \times 4^4 + 5^5 \times 1^1 + 5^5$$
$$:= 1! + 1! + 2! \times 5! \times 4! - 4! = (-1^1 - 1^1 + 2^2) \times 5^5 - 4^4 - 4^4$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{5754} &:= -1! - 1! + 2! \times (-2! + 4! \times 5!) && = (1^1 + 1^1) \times (2^2 + 2^2 - 4^4 + 5^5)\\
\mathbf{5757} &:= 1! + (1! + 4! \times 5!) \times 2! - 3! && = -(1^1 + 1^1) \times (4^4 - 5^5 + 2^2) + 3^3\\
\mathbf{5764} &:= (1! + 1!) \times (4! \times 5! - 1!) + 3! && = -(1^1 + 1^1) \times (4^4 - 5^5) - 1^1 + 3^3\\
\mathbf{5765} &:= (1! + 1!) \times 4! \times 5! - 1! + 3! && = -(1^1 + 1^1) \times (4^4 - 5^5) \times 1^1 + 3^3\\
\mathbf{5766} &:= (1! + 1!) \times 1! \times 4! \times 5! + 3! && = 1^1 - (1^1 + 1^1) \times (4^4 - 5^5) + 3^3\\
\mathbf{5767} &:= 1! + (1! + 1!) \times 4! \times 5! + 3! && = (1^1 + 1^1) \times (1^1 - 4^4 + 5^5) + 3^3\\
\mathbf{5769} &:= 1! + (1! + 4! \times 5!) \times 2! + 3! && = -(1^1 + 1^1) \times (4^4 - 5^5) + 2^2 + 3^3\\
\mathbf{5773} &:= 1! \times 1! + 2! \times (4! \times 5! + 3!) && = (1^1 + 1^1) \times (2^2 - 4^4 + 5^5) + 3^3\\
\mathbf{5784} &:= (1! + 1!) \times (2! \times 3! + 4! \times 5!) && = (1^1 + 1^1) \times (-2^2 + 3^3 - 4^4 + 5^5)\\
\mathbf{5790} &:= ((1! + 1!) \times 5! + 1!) \times 4! + 3! && = (1^1 + 1^1) \times (5^5 - 1^1 - 4^4 + 3^3)\\
\mathbf{5796} &:= (-1! \times 1! + 4!) \times (3! + 5!) \times 2! && = -(1^1 + 1^1) \times (4^4 - 3^3 - 5^5) + 2^2\\
\mathbf{5800} &:= ((-1! + ((1! + 5!) \times 4!)) \times 2!) - 3! && = (1^1 + 1^1) \times (5^5 - 4^4 + 2^2 + 3^3)\\
\mathbf{5844} &:= (1! + 1!) \times (-3! + (4! \times (2! + 5!))) && = (1^1 \times 1^1 - 3^3) \times 4^4 + 2^2 \times 5^5\\
\mathbf{5886} &:= 3! + 2! \times 4! \times 5! + 5! && = -3^3 \times 2^2 - 4^4 + 5^5 + 5^5\\
\mathbf{5996} &:= (1! + 1!) \times ((5! - 2!) + (4! \times 5!)) && = -1^1 - 1^1 + 5^5 + 2^2 - 4^4 + 5^5\\
\mathbf{5997} &:= (-1! + ((1! + 4!) \times (5! + 5!))) - 2! && = -1^1 \times 1^1 - 4^4 + 5^5 + 5^5 + 2^2\\
\mathbf{5998} &:= (5! + 5!) \times (4! + 1!) - 2! && = 5^5 + 5^5 - 4^4 \times 1^1 + 2^2\\
\mathbf{5999} &:= -1! + 2! \times (4! \times 5! + 5!) && = 1^1 + 2^2 - 4^4 + 5^5 + 5^5\\
\mathbf{6000} &:= (1! + 1!) \times ((2! + 4!) \times 5! - 5!) && = 1^1 + 1^1 + 2^2 - 4^4 + 5^5 + 5^5\\
\mathbf{6001} &:= 1! \times 1! + 2! \times 5! \times (1! + 4!) && = (1^1 + 1^1) \times (2^2 + 5^5) - 1^1 - 4^4\\
\mathbf{6002} &:= 2! + 2! \times (4! \times 5! + 5!) && = 2^2 + 2^2 - 4^4 + 5^5 + 5^5\\
\mathbf{6004} &:= (1! + 1!) \times (2! + 5! \times (1! + 4!)) && = (1^1 + 1^1) \times (2^2 + 5^5 + 1^1) - 4^4\\
\mathbf{6025} &:= 1! - (1! - (5! + 3!) \times 2!) \times 4! && = (1^1 + 1^1) \times 5^5 + 3^3 + 2^2 - 4^4\\
\mathbf{6044} &:= (-1! - 1! + (3! + 5!) \times 4!) \times 2! && = (1^1 + 1^1) \times (3^3 + 5^5) - 4^4 - 2^2\\
\mathbf{6046} &:= (1! + 1!) \times (-1! + (3! + 5!) \times 4!) && = (1^1 + 1^1) \times (-1^1 + 3^3 + 5^5) - 4^4\\
\mathbf{6047} &:= -1! + (1! + 1!) \times (3! + 5!) \times 4! && = -1^1 + (1^1 + 1^1) \times (3^3 + 5^5) - 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{6048} &:= (3! + 3! + 5! + 5!) \times 4! && = 3^3 + 3^3 + 5^5 + 5^5 - 4^4\\
&:= (1! + 1!) \times (3! + 5!) \times 4! && = (1^1 + 1^1) \times (3^3 + 5^5) - 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{6049} &:= 1! + (1! + 1!) \times (3! + 5!) \times 4! && = 1^1 + (1^1 + 1^1) \times (3^3 + 5^5) - 4^4\\
\mathbf{6050} &:= (1! + 1!) \times (1! + (3! + 5!) \times 4!) && = (1^1 + 1^1) \times (1^1 + 3^3 + 5^5) - 4^4\\
\mathbf{6052} &:= (1! + 1! + (3! + 5!) \times 4!) \times 2! && = (1^1 + 1^1) \times (3^3 + 5^5) - 4^4 + 2^2\\
\mathbf{6479} &:= -1! \times 1! + 5! \times (4! + 4! + 3!) && = (1^1 + 1^1) \times (5^5 + 4^4) - 4^4 - 3^3\\
\mathbf{6480} &:= (1! + 1!) \times 4! \times 5! + 3! \times 5! && = 1^1 \times 1^1 + 4^4 + 5^5 - 3^3 + 5^5\\
\mathbf{6533} &:= -1! + (1! + 5!) \times (4! + 4! + 3!) && = (1^1 + 1^1) \times (5^5 + 4^4) - 4^4 + 3^3
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
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$$\mathbf{6552} := (1!+1!)\times(3!+5!)\times(2!+4!) = (1^1+1^1)\times(3^3+5^5-2^2)+4^4$$
$$\mathbf{6624} := (-1!\times 1!+4!)\times 3!\times 2!\times 4! = -1^1+(-1^1+4^4)\times 3^3-2^2-4^4$$
$$\mathbf{6625} := 1!-(1!-4!)\times 3!\times 4!\times 2! = (-1^1\times 1^1+4^4)\times 3^3-4^4-2^2$$
$$\mathbf{6792} := (1!-(1!-2!\times 4!)\times 3!)\times 4! = 1^1+(1^1+2^2+4^4)\times 3^3-4^4$$
$$\mathbf{6908} := (-1!-1!+3!\times 4!\times 4!)\times 2! = (1^1\times 1^1+3^3)\times 4^4-4^4-2^2$$
$$\mathbf{6909} := -1!+(-1!+3!\times 4!\times 4!)\times 2! = 1^1+(1^1+3^3)\times 4^4-4^4-2^2$$
$$\mathbf{6910} := -1!-1!+3!\times 4!\times(4!+4!) = -1^1-1^1+(3^3+4^4-4^4)\times 4^4$$
$$\mathbf{6911} := -1!+3!\times 4!\times(4!+4!) = -1^1+(3^3+4^4-4^4)\times 4^4$$
$$\mathbf{6912} := 3!\times 4!\times(4!+4!) = (3^3+4^4-4^4)\times 4^4$$
$$\mathbf{6913} := 1!+3!\times 4!\times(4!+4!) = 1^1+(3^3+4^4-4^4)\times 4^4$$
$$\mathbf{6914} := 1!+1!+3!\times 4!\times(4!+4!) = 1^1+1^1+(3^3+4^4-4^4)\times 4^4$$
$$\mathbf{6915} := 1!+(1!+3!\times 4!\times 4!)\times 2! = -1^1+(1^1+3^3)\times 4^4-4^4+2^2$$
$$\mathbf{6916} := (1!+1!+3!\times 4!\times 4!)\times 2! = (1^1\times 1^1+3^3)\times 4^4-4^4+2^2$$
$$\mathbf{7032} := (-1!+(1!+2!\times 4!)\times 3!)\times 4! = -1^1-(1^1+2^2-4^4)\times 3^3+4^4$$
$$\mathbf{7062} := (1!+(1!+4!\times 2!)\times 4!)\times 3! = 1^1+1^1+4^4-(2^2-4^4)\times 3^3$$
$$\mathbf{7169} := -1!+(-1!+5!+5!)\times(3!+4!) = 1^1+(1^1+5^5-5^5+3^3)\times 4^4$$
$$\mathbf{7198} := (-1!+(1!+4!)\times 3!\times 4!)\times 2! = -1^1+(1^1+4^4)\times 3^3+4^4+2^2$$
$$\mathbf{7199} := -1!+(1!+4!)\times 3!\times 4!\times 2! = (1^1\times 1^1+4^4)\times 3^3+4^4+2^2$$
$$\mathbf{7917} := -1!\times 1!-2!+4!\times 5!+7! = -1^1-(1^1+2^2+4^4)\times 5^5+7^7$$
$$\mathbf{7919} := 1!\times 1!-2!+4!\times 5!+7! = 1^1-(1^1+2^2+4^4)\times 5^5+7^7$$
$$\mathbf{8400} := ((2!+1!)\times 4!-2!)\times 5! = 2^2\times(-1^1-4^4\times 2^2+5^5)$$
$$\mathbf{8526} := -(1!-(1!+2!)\times 4!)\times 5!+3! = (1^1\times 1^1-2^2)\times(4^4-5^5+3^3)$$
$$\mathbf{8618} := (-1!+(1!+2!)\times 5!)\times 4!+2! = -1^1+(1^1-2^2)\times(-5^5+4^4-2^2)$$
$$\mathbf{8633} := -1!+(1!+2!)\times 4!\times 5!-3! = -1^1+(1^1-2^2)\times(4^4-5^5)+3^3$$
$$\mathbf{8635} := 1!+(1!+2!)\times 4!\times 5!-3! = 1^1+(1^1-2^2)\times(4^4-5^5)+3^3$$
$$\mathbf{8640} := (2!\times 3!+4!-4!)\times 6! = 2^2\times 3^3\times(4^4+4^4)-6^6$$
$$\mathbf{8645} := -1!+(1!+2!\times 5!\times 3!)\times 3! = -1^1+(-1^1+2^2)\times 5^5-3^3\times 3^3$$
$$\mathbf{8646} := (1!+2!\times 5!\times 3!)\times 3! = (-1^1+2^2)\times 5^5-3^3\times 3^3$$
$$\mathbf{8647} := 1!+(1!+2!\times 5!\times 3!)\times 3! = 1^1-(1^1-2^2)\times 5^5-3^3\times 3^3$$
$$\mathbf{9119} := -1!+(1!+4!-5!)\times(4!-5!) = -(1^1+1^1)\times(4^4-5^5)+4^4+5^5$$
$$\mathbf{9120} := (1!+(1!+4!)\times(1!+2!))\times 5! = 1^1\times 1^1-4^4-(1^1-2^2)\times 5^5$$

$$\mathbf{10560} := (1!+1!-4!)\times 5!\times(-3!+2!) = (-(1^1+1^1)\times 4^4+5^5+3^3)\times 2^2$$
$$\mathbf{11041} := 1!+(1!+4!)\times 2!\times 5!+7! = -1^1-1^1-(4^4+2^2)\times 5^5+7^7$$
$$\mathbf{11423} := -1!+(1!+5!-2!)\times(-4!+5!) = (1^1+1^1)\times(5^5+2^2\times 4^4)+5^5$$
$$\mathbf{11470} := (-1!+(-1!+2!\times 5!)\times 4!)\times 2! = -1^1-1^1-2^2+(5^5-4^4)\times 2^2$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{11471} := -1! + (-1! + 2! \times 5!) \times 4! \times 2! \qquad = -1^1 \times 1^1 - 2^2 + (5^5 - 4^4) \times 2^2$$

$$\mathbf{11472} := 4! \times (-2! + (2! + 2!) \times 5!) \qquad = -4^4 \times 2^2 - 2^2 + 2^2 \times 5^5$$
$$:= (-1! + 2! \times 5!) \times 4! \times 2! \qquad = 1^1 \times 2^2 \times (5^5 - 4^4) - 2^2$$

$$\mathbf{11473} := 1! - (1! - 2! \times 5!) \times 4! \times 2! \qquad = 1^1 \times 1^1 - 2^2 + (5^5 - 4^4) \times 2^2$$
$$\mathbf{11474} := (1! - (1! - 2! \times 5!) \times 4!) \times 2! \qquad = 1^1 + 1^1 - 2^2 + (5^5 - 4^4) \times 2^2$$
$$\mathbf{11496} := ((2! + 2!) \times 5! - 1!) \times 4! \qquad = 2^2 \times (2^2 + 5^5 + 1^1 - 4^4)$$
$$\mathbf{11508} := (1! + 1!) \times (4! \times 5! \times 2! - 3!) \qquad = 1^1 + (1^1 - 4^4 + 5^5) \times 2^2 + 3^3$$
$$\mathbf{11520} := (2! - 3! + 4!) \times 4! \times 4! \qquad = (-2^2 + 3^3) \times (4^4 + 4^4) - 4^4$$
$$\mathbf{11568} := (2! - (2! - 3!) \times 5!) \times 4! \qquad = 2^2 \times (-2^2 + 3^3 + 5^5 - 4^4)$$
$$\mathbf{11880} := (-1! + (1! + 4!) \times (-2! + 3!)) \times 5! \qquad = -(1^1 + 1^1) \times 4^4 + 2^2 \times (-3^3 + 5^5)$$
$$\mathbf{12004} := (1! + (1! + 4!) \times 5!) \times 2! \times 2! \qquad = -(1^1 + 1^1) \times 4^4 + (5^5 + 2^2) \times 2^2$$

$$\mathbf{12096} := (4! + 4!) \times 2! \times (3! + 5!) \qquad = -4^4 - 4^4 + 2^2 \times (3^3 + 5^5)$$
$$:= (3! - 4!) \times (2! \times 4! - 6!) \qquad = -3^3 \times (4^4 \times 2^2 + 4^4) + 6^6$$

$$\mathbf{12240} := (1! + (1! + 4!) \times 2!) \times 2! \times 5! \qquad = -1^1 \times 1^1 \times 4^4 + 2^2 + 2^2 \times 5^5$$

$$\mathbf{13824} := (2! + 2!) \times 3! \times 4! \times 4! \qquad = (-2^2 + 2^2 + 3^3) \times (4^4 + 4^4)$$
$$:= (3! \times 5! - 4! - 5!) \times 4! \qquad = 3^3 \times (5^5 + 4^4 - 5^5 + 4^4)$$

$$\mathbf{14784} := (4! - 2!) \times (-2! \times 4! + 6!) \qquad = (4^4 - 2^2 \times 2^2) \times 4^4 - 6^6$$
$$\mathbf{15396} := (2! + 5!) \times (3! + 5!) + 4! \qquad = 2^2 \times 5^5 + 3^3 + 5^5 - 4^4$$
$$\mathbf{15599} := -1! + ((-1! + 3!) \times 2! + 5!) \times 5! \qquad = 1^1 \times 1^1 - 3^3 + 2^2 \times 5^5 + 5^5$$
$$\mathbf{15600} := (1! + 1! + 2! + 5! + 3!) \times 5! \qquad = 1^1 + 1^1 + 2^2 \times 5^5 - 3^3 + 5^5$$
$$\mathbf{15844} := 5! \times 5! + 2! \times (2! + 6!) \qquad = (5^5 + 5^5 \times 2^2) \times 2^2 - 6^6$$
$$\mathbf{16128} := (-2! + 3! + 4!) \times 4! \times 4! \qquad = (2^2 + 3^3) \times (4^4 + 4^4) + 4^4$$
$$\mathbf{16704} := (-2! + 5! - 2!) \times 4! \times 3! \qquad = 2^2 \times (5^5 + 2^2 \times 4^4 + 3^3)$$
$$\mathbf{17039} := -1! \times 1! + (-2! + 3! \times 4!) \times 5! \qquad = -1^1 + (1^1 + 2^2) \times (3^3 + 4^4 + 5^5)$$
$$\mathbf{17041} := 1! \times 1! - (2! - 3! \times 4!) \times 5! \qquad = 1^1 + (1^1 + 2^2) \times (3^3 + 4^4 + 5^5)$$
$$\mathbf{17161} := 1! + (1! - 2! + 4! + 5!) \times 5! \qquad = (1^1 + 1^1 + 2^2) \times (4^4 + 5^5) - 5^5$$
$$\mathbf{17352} := 1! \times 1! \times 4! + 4! \times (2! + 6!) \qquad = (1^1 + 1^1 - 4^4) \times (-4^4 + 2^2) - 6^6$$
$$\mathbf{17376} := (1! + 1! + 2! + 3! \times 5!) \times 4! \qquad = (1^1 + 1^1 + 2^2) \times (3^3 + 5^5 - 4^4)$$
$$\mathbf{17852} := -2! - 2! + 4! \times (4! + 6!) \qquad = -2^2 + (-2^2 + 4^4) \times 4^4 - 6^6$$
$$\mathbf{17854} := -1! \times 1! \times 2! + 4! \times (4! + 6!) \qquad = -1^1 - 1^1 + (-2^2 + 4^4) \times 4^4 - 6^6$$
$$\mathbf{17855} := 1! - 2! + 4! \times (4! + 6!) \qquad = -1^1 + (-2^2 + 4^4) \times 4^4 - 6^6$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{17856} &:= (-4! + 4! \times 2!) \times (4! + 6!) && = 4^4 \times 4^4 - 2^2 \times 4^4 - 6^6 \\
&:= (-1! + 2!) \times 4! \times (4! + 6!) && = (-1^1 \times 2^2 + 4^4) \times 4^4 - 6^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{17857} &:= -1! + 2! + 4! \times (4! + 6!) && = 1^1 - (2^2 - 4^4) \times 4^4 - 6^6 \\
\mathbf{17858} &:= 1! \times 1! \times 2! + 4! \times (4! + 6!) && = 1^1 + 1^1 - (2^2 - 4^4) \times 4^4 - 6^6 \\
\mathbf{17860} &:= 2! + 2 + 4! \times (4! + 6!) && = 2^2 - (2^2 - 4^4) \times 4^4 - 6^6 \\
\mathbf{18623} &:= -1! + (1! + 4!) \times (4! + 6!) + 4! && = -1^1 \times 1^1 + 4^4 \times 4^4 - 6^6 - 4^4 \\
\mathbf{18624} &:= 4! + (1! + 4!) \times (4! + 6!) && = (4^4 \times 1^1) \times 4^4 - 4^4 - 6^6 \\
\mathbf{18625} &:= (4! + 1!) \times (4! + 1! + 6!) && = (4^4 - 1^1) \times 4^4 + 1^1 - 6^6 \\
\mathbf{18626} &:= 1! + (1! + 4!) \times (1! + 4! + 6!) && = 1^1 + 1^1 + (4^4 - 1^1) \times 4^4 - 6^6 \\
\mathbf{19008} &:= (-1! - 1! + 4!) \times (4! \times 3! + 6!) && = -(1^1 + 1^1) \times (4^4 + 4^4) \times 3^3 + 6^6 \\
\mathbf{19396} &:= (1! + 1! + 4!) \times (4! + 2! + 6!) && = (1^1 + 1^1 + 4^4) \times 4^4 + 2^2 - 6^6 \\
\mathbf{20160} &:= ((1! + 1!) \times (2! + 4!) - 4!) \times 6! && = (1^1 \times 1^1 + 2^2 + 4^4) \times 4^4 - 6^6 \\
\mathbf{20586} &:= (-1! + (-1! + 5! + 4!) \times 4!) \times 3! && = (1^1 + 1^1) \times (5^5 + 4^4 + 4^4 \times 3^3) \\
\mathbf{23104} &:= (2! + 3! + 4!) \times (2! + 6!) && = (2^2 - 3^3) \times 4^4 \times 2^2 + 6^6 \\
\mathbf{24960} &:= (4! + 2!) \times (2! + 3!) \times 5! && = -4^4 + (2^2 + 2^2) \times (3^3 + 5^5) \\
\mathbf{25919} &:= -1! \times 1! + (2! \times 3! + 4!) \times 6! && = -1^1 + (1^1 - 2^2) \times 3^3 \times 4^4 + 6^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{25920} &:= (4! + 4! - 2! \times 3!) \times 6! && = (4^4 - 4^4 \times 2^2) \times 3^3 + 6^6 \\
&:= (-3! - 3! + 2! \times 4!) \times 6! && = (3^3 - 3^3 \times 2^2) \times 4^4 + 6^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{25921} &:= 1! \times 1! + (2! \times 3! + 4!) \times 6! && = 1^1 + (1^1 - 2^2) \times 3^3 \times 4^4 + 6^6 \\
\mathbf{27358} &:= -(1! + 1!) - 4! \times 5! + 3! \times 7! && = 1^1 - (1^1 + 4^4) \times (5^5 - 3^3) + 7^7 \\
\mathbf{32832} &:= (1! + 1!) \times (6! - 3! \times 3!) \times 4! && = 1^1 \times 1^1 \times 6^6 - (3^3 + 3^3) \times 4^4 \\
\mathbf{34416} &:= 2! \times (4! \times (6! + 2!) - 5!) && = 2^2 + 4^4 + 6^6 - 2^2 \times 5^5 \\
\mathbf{35712} &:= 1! \times 1! \times 2! \times 4! \times (4! + 6!) && = (1^1 + 1^1) \times ((-2^2 + 4^4) \times 4^4 - 6^6) \\
\mathbf{37464} &:= (1! + (1! + 3!) \times 5! + 6!) \times 4! && = 1^1 \times 1^1 + 3^3 \times 5^5 - 6^6 - 4^4 \\
\mathbf{39599} &:= -1! + (1! + 3! + 2! \times 4!) \times 6! && = -1^1 + (1^1 + 3^3) \times (2^2 - 4^4) + 6^6 \\
\mathbf{39601} &:= 1! + (1! + 3! + 2! \times 4!) \times 6! && = 1^1 + (1^1 + 3^3) \times (2^2 - 4^4) + 6^6 \\
\mathbf{39744} &:= 3! \times (4! + 6! + 7!) + 7! && = -3^3 \times 4^4 + 6^6 - 7^7 + 7^7 \\
\mathbf{40608} &:= (1! + 1!) \times (3! + 5! + 6!) \times 4! && = -(1^1 + 1^1) \times (3^3 + 5^5) + 6^6 + 4^4 \\
\mathbf{41472} &:= 2! \times 3! \times 3! \times 4! \times 4! && = (2^2 \times 3^3 - 3^3) \times (4^4 + 4^4) \\
\mathbf{46656} &:= 3! \times 3! \times (4! \times 4! + 6!) && = 3^3 - 3^3 - 4^4 + 4^4 + 6^6 \\
\mathbf{47519} &:= -1! + (-1! + 2! \times 3!) \times 3! \times 6! && = -1^1 + (1^1 + 2^2 + 3^3) \times 3^3 + 6^6
\end{aligned}$$

$$\mathbf{47520} := 6! \times (2! \times 3! \times 3! - 3!) \qquad = 6^6 + (2^2 + 3^3) \times 3^3 + 3^3$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$:= (-1! + 2! \times 3!) \times 3! \times 6!$ $= (1^1 + 2^2 + 3^3) \times 3^3 + 6^6$

47521 $:= 1! - (1! - 2! \times 3!) \times 3! \times 6!$ $= 1^1 + (1^1 + 2^2 + 3^3) \times 3^3 + 6^6$
48960 $:= (2! \times (-2! + 4!) + 4!) \times 6!$ $= (2^2 + 2^2) \times 4^4 + 4^4 + 6^6$
49680 $:= (-1! + (-1! + 3! \times 3!) \times 2!) \times 6!$ $= (1^1 \times 1^1 + 3^3) \times 3^3 \times 2^2 + 6^6$
53568 $:= (3! + 3!) \times 3! \times (4! + 6!)$ $= (3^3 + 3^3 - 3^3) \times 4^4 + 6^6$
60480 $:= ((4! - 3!) \times 3! - 4!) \times 6!$ $= 4^4 \times 3^3 + 3^3 \times 4^4 + 6^6$
62640 $:= ((-1! - 1! + 4!) \times 4! - 3!) \times 5!$ $= (1^1 \times 1^1 + 4^4) \times 4^4 - 3^3 - 5^5$
68662 $:= -1! + (1! + 4! \times 4!) \times (5! - 1!)$ $= 1^1 + 1^1 + 4^4 \times 4^4 + 5^5 - 1^1$
68663 $:= (1! + 4! \times 4!) \times (-1! + 5!)$ $= 1^1 + 4^4 \times 4^4 + 1^1 + 5^5$
68664 $:= 1! - (1! + 4! \times 4!) \times (1! - 5!)$ $= 1^1 + 1^1 + 4^4 \times 4^4 + 1^1 + 5^5$
68688 $:= (3! - (1! - 5!) \times 4!) \times 4!$ $= 3^3 \times 1^1 + 5^5 + 4^4 \times 4^4$
69169 $:= 1! \times 1! + 4! \times (4! \times 5! + 2!)$ $= (1^1 + 1^1 + 4^4) \times 4^4 + 5^5 - 2^2$
71424 $:= (2! + 2!) \times 4! \times (4! + 6!)$ $= 2^2 \times ((-2^2 + 4^4) \times 4^4 - 6^6)$
86398 $:= -1! - 1! + 4! \times (3! \times 6! - 6!)$ $= -1^1 - 1^1 - 4^4 \times 3^3 + 6^6 + 6^6$
86399 $:= -1! + 4! \times (3! \times 6! - 6!)$ $= -1^1 - 4^4 \times 3^3 + 6^6 + 6^6$
86400 $:= 4! \times (3! \times 6! - 6!)$ $= -4^4 \times 3^3 + 6^6 + 6^6$
86401 $:= 1! + 4! \times (3! \times 6! - 6!)$ $= 1^1 - 4^4 \times 3^3 + 6^6 + 6^6$
86402 $:= 1! + 1! + 4! \times (3! \times 6! - 6!)$ $= 1^1 + 1^1 - 4^4 \times 3^3 + 6^6 + 6^6$
86496 $:= -(1! + 1! - 3!) \times 4! + 5! \times 6!$ $= (1^1 + 1^1) \times (-3^3 - 4^4 - 5^5 + 6^6)$
86542 $:= (1! \times 1! + 6!) \times 5! + 4! - 2!$ $= (1^1 + 1^1) \times (6^6 - 5^5 - 4^4 - 2^2)$
86546 $:= (1! \times 1! + 6!) \times 5! + 4! + 2!$ $= (1^1 + 1^1) \times (6^6 - 5^5 - 4^4) - 2^2$
87000 $:= (1! \times 1! - 2! + 3! + 6!) \times 5!$ $= (1^1 + 1^1) \times (-2^2 - 3^3 + 6^6 - 5^5)$
87006 $:= 1! + (1! + 5!) \times (6! - 1!) + 3!$ $= (1^1 + 1^1) \times (-5^5 + 6^6 - 1^1 - 3^3)$
87108 $:= (1! \times 1! \times 2! + 5!) \times (6! - 3!)$ $= (1^1 + 1^1) \times (-2^2 - 5^5 + 6^6 + 3^3)$
87112 $:= (1! \times 1! + 5!) \times 6! - 3! - 2!$ $= (1^1 + 1^1) \times (-5^5 + 6^6 + 3^3) - 2^2$
87114 $:= -1! \times 1! \times 3! + (1! + 5!) \times 6!$ $= (1^1 + 1^1) \times (3^3 - 1^1 - 5^5 + 6^6)$
87115 $:= 1! \times 1! + (1! + 5!) \times 6! - 3!$ $= -1^1 + (1^1 + 1^1) \times (-5^5 + 6^6 + 3^3)$
87116 $:= 1! + 1! - 3! + 5! \times 6! + 6!$ $= (1^1 + 1^1) \times (3^3 - 5^5) + 6^6 + 6^6$
87117 $:= -1! - 1! - 1! + (3! + 6!) \times 5!$ $= 1^1 + (1^1 + 1^1) \times (3^3 + 6^6 - 5^5)$
87118 $:= -1! - 1! \times 1! + (3! + 6!) \times 5!$ $= (1^1 + 1^1) \times (1^1 + 3^3 + 6^6 - 5^5)$
87120 $:= 1! + 1! + (3! + 6!) \times 5! - 2!$ $= (1^1 + 1^1) \times (3^3 + 6^6 - 5^5) + 2^2$
87124 $:= 1! + 1! + 2! + (3! + 6!) \times 5!$ $= (1^1 + 1^1) \times (2^2 + 3^3 + 6^6 - 5^5)$
87216 $:= (1! + (1! + 5!) \times 3!) \times 5! - 4!$ $= -1^1 - (1^1 - 5^5) \times 3^3 + 5^5 - 4^4$
87264 $:= (1! \times 1! + 5!) \times 6! + 3! \times 4!$ $= -(1^1 + 1^1) \times (5^5 - 6^6 + 3^3) + 4^4$
90599 $:= -1! + (-1! + (3! + 5!) \times 3!) \times 5!$ $= 1^1 + (1^1 + 3^3) \times 5^5 - 3^3 + 5^5$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
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$$\begin{aligned}
\mathbf{90672} &:= -(1!+1!)\times 4!+6!\times(3!+5!) && = (1^1+1^1)\times(4^4+6^6)-3^3-5^5\\
\mathbf{93626} &:= (1!-(1!-3!)\times 6!)\times(2!+4!) && = (1^1+1^1)\times(3^3+6^6)+2^2+4^4\\
\mathbf{99360} &:= 1!\times 1!\times 6!\times(5!-3!+4!) && = (1^1+1^1)\times(6^6+5^5+3^3)-4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{101952} &:= (6!-2!\times 3!)\times 3!\times 4! && = 6^6+2^2\times(3^3+3^3)\times 4^4\\
\mathbf{105839} &:= -1!\times 1!+(5!+6!)\times(5!+3!) && = (1^1+1^1)\times(5^5+6^6+5^5)+3^3\\
\mathbf{112320} &:= (2!\times 3!+3!\times 4!)\times 6! && = (-2^2+3^3)\times 3^3\times 4^4-6^6\\
\mathbf{120960} &:= 4!\times((2!+3!)\times 6!-6!) && = 4^4\times 2^2\times 3^3+6^6+6^6\\
\mathbf{146880} &:= (3!\times(3!+4!)+4!)\times 6! && = 3^3\times(3^3\times 4^4+4^4)-6^6\\
\mathbf{172800} &:= (3!\times 4!-4!)\times 2!\times 6! && = -3^3\times(4^4+4^4)+2^2\times 6^6\\
\mathbf{174000} &:= (2!\times(2!+6!)+3!)\times 5! && = 2^2\times(-2^2+6^6-3^3-5^5)\\
\mathbf{174118} &:= -1!+(1!+5!)\times(-1!+6!\times 2!) && = -1^1-1^1+(-5^5-1^1+6^6)\times 2^2\\
\mathbf{174119} &:= (-1!+2!\times 6!)\times(1!+5!) && = -1^1+2^2\times(6^6-1^1-5^5)\\
\mathbf{174120} &:= 1!+(1!+5!)\times(6!\times 2!-1!) && = (-1^1\times 1^1-5^5+6^6)\times 2^2\times 1^1\\
\mathbf{174216} &:= 2!\times(2!+5!)\times(-3!+6!) && = 2^2\times(-2^2-5^5+3^3+6^6)\\
\mathbf{174227} &:= -1!+((1!+5!)\times 6!-3!)\times 2! && = -1^1+(-1^1-5^5+6^6+3^3)\times 2^2\\
\mathbf{174228} &:= ((1!+5!)\times 6!-3!)\times 2! && = (-1^1-5^5+6^6+3^3)\times 2^2\\
\mathbf{174229} &:= 1!+((1!+5!)\times 6!-3!)\times 2! && = 1^1-(1^1+5^5-6^6-3^3)\times 2^2\\
\mathbf{174230} &:= (1!+(1!+5!)\times 6!-3!)\times 2! && = -1^1-1^1+(-5^5+6^6+3^3)\times 2^2\\
\mathbf{174234} &:= (1!+1!+2!\times 5!)\times 6!-3! && = 1^1+1^1-2^2\times(5^5-6^6-3^3)\\
\mathbf{174236} &:= 2!\times(-2!+(3!+6!)\times 5!) && = 2^2+2^2\times(3^3+6^6-5^5)\\
\mathbf{174237} &:= -1!+(-1!+(3!+6!)\times 5!)\times 2! && = 1^1+(1^1+3^3+6^6-5^5)\times 2^2\\
\mathbf{174240} &:= ((1!\times 1!\times 3!+6!)\times 5!)\times 2! && = (1^1+1^1+3^3+6^6-5^5)\times 2^2\\
\mathbf{186624} &:= (4!+3!\times 7!)\times 3!+7! && = 4^4\times 3^3\times(7^7+3^3-7^7)\\
\mathbf{200448} &:= 2!\times(6!-4!)\times 4!\times 3! && = 2^2\times 6^6+(4^4+4^4)\times 3^3\\
\mathbf{205632} &:= 2!\times 3!\times 4!\times(-3!+6!) && = (-2^2+3^3)\times 4^4\times 3^3+6^6\\
\mathbf{380160} &:= (-4!\times(3!+2!)+6!)\times 6! && = 4^4\times 3^3+2^2\times(6^6+6^6)\\
\mathbf{764664} &:= (1!+(1!+4!)\times 3!)\times(4!+7!) && = 1^1-(1^1+4^4-3^3)\times 4^4+7^7
\end{aligned}$$

$$\begin{aligned}
\mathbf{1080000} &:= 2!\times 6!\times(3!+4!+6!) && = -2^2\times 6^6+3^3\times(4^4+6^6)\\
\mathbf{2491776} &:= (3!+3!\times 6!)\times 4!\times 4! && = (3^3+3^3)\times(6^6-4^4-4^4)\\
\mathbf{2505600} &:= ((3!\times 4!)\times 6!+6!)\times 4! && = 3^3\times(-4^4+6^6+6^6-4^4)\\
\mathbf{2566080} &:= ((-3!+6!)\times 3!-6!)\times 6! && = 3^3\times 6^6+3^3\times 6^6+6^6\\
\mathbf{3075840} &:= 6!\times(-4!-4!+3!\times 6!) && = (6^6+4^4\times 4^4)\times 3^3+6^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{4665600} &:= ((2!+3!)\times 6!+6!)\times 6! && = 2^2\times(3^3\times 6^6-6^6-6^6)\\
&:= (2!+1!+3!)\times 6!\times 6! && = 2^2\times((-1^1+3^3)\times 6^6-6^6)
\end{aligned}$$

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http://doi.org/10.5281/zenodo.2573569

$$\mathbf{23328000} := (-1! + (-1! + 4!) \times 2!) \times 6! \times 6! \qquad = (-1^1 - 1^1 + 4^4 - 2^2) \times (6^6 + 6^6)$$
$$\mathbf{298598400} := (-4! \times 3! + 6!) \times 6! \times 6! \qquad = 4^4 \times (3^3 \times 6^6 - 6^6 - 6^6)$$

4 Factorial-Power Selfie Expressions: Permutable Power

In this paper, our aim is to work with examples based on the expression given in (4) , where the expressions are separated by equality sign with **factorial** and **powers** on each side. The powers are the same as of bases but with different permutations. Moreover, the digits follow the same order on both sides, with no rule on operations. The operation used are multiplication, addition, subtraction, and composition. Due to high quantity of numbers, the results are limited up to five terms for positive sign, and up to four terms for positive and negative signs. Results for five terms expressions with positive and negative signs are given in next work [19].

4.1 Positive Sign: Up to Four Terms Expressions

4.1.1 Up to Four Terms Expressions

Below are examples of numbers following the expression (4) with positive sign up to four terms.

$$\begin{aligned}
\mathbf{1} &:= 1! && = 1^1 \\
\mathbf{2} &:= 1! \times 2! && = 1^2 \times 2^1 \\
\mathbf{3} &:= 1! + 2! && = 1^2 + 2^1 \\
\mathbf{8} &:= 1! \times 2! + 3! && = 1^3 + 2^2 + 3^1 \\
\mathbf{12} &:= 1! \times 2! \times 3! && = 1^2 + 2^3 + 3^1 \\
& && = 1^3 \times 2^2 \times 3^1 \\
& && = 1^3 + 2^1 + 3^2 \\
\mathbf{13} &:= 1! + 2! \times 3! && = 1^3 + 2^2 \times 3^1 \\
\mathbf{18} &:= (1! + 2!) \times 3! && = 1^1 + 2^3 + 3^2 \\
& && = 1^3 \times 2^1 \times 3^2 \\
\mathbf{31} &:= 1! + 3! + 4! && = 1^4 \times 3^3 + 4^1 \\
\mathbf{48} &:= 1! \times 2! \times 4! && = (1^4 + 2^1) \times 4^2 \\
\mathbf{145} &:= 4! \times 3! + 1! && = 4^3 + 3^4 \times 1^1 \\
\mathbf{36} &:= 1! \times 2! \times 3! + 4! && = 1^3 + 2^4 + 3^1 + 4^2 \\
& && = 1^4 + 2^2 + 3^3 + 4^1
\end{aligned}$$

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$$\begin{aligned}
\mathbf{56} &:= 2! \times (1! + 4!) + 3! && = 2^3 \times 1^4 + 4^2 \times 3^1 \\
&:= 3! + (1! + 4!) \times 2! && = (3^2 + 1^3) \times 4^1) + 2^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{60} &:= (1! \times 2!) \times (3! + 4!) && = 1^1 + 2^4 + 3^3 + 4^2 \\
&:= (1! \times 2!) \times (4! + 3!) && = 1^4 + 2^1 \times 4^2 + 3^3
\end{aligned}$$

$$\mathbf{61} = 1! + (4! + 3!) \times 2! \quad = (1^3 + 4^1) \times 3^2 + 2^4$$

$$\begin{aligned}
\mathbf{90} &:= (1! + 2!) \times (3! + 4!) && = 1^1 + 2^4 + 3^2 + 4^3 \\
& && = 1^3 + 2^2 + 3^4 + 4^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{128} &:= (1! \times 2!) + 3! + 5! && = 1^5 \times 2^2 \times (3^3 + 5^1) \\
\mathbf{129} &:= (1! + 2!) + 3! + 5! && = 1^5 + 2^2 \times (3^3 + 5^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{132} &:= (1! \times 2!) \times 3! + 5! && = 1^5 \times 2^2 + 3^1 + 5^3 \\
&:= (2! \times 3!) \times 1! + 5! && = 2^5 + (3^1 + 1^3) \times 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{133} &:= 1! + 2! \times 3! + 5! && = 1^5 + 2^2 + 3^1 + 5^3 \\
\mathbf{138} &:= (1! + 2!) \times 3! + 5! && = 1^5 + 2^2 \times 3^1 + 5^3 \\
\mathbf{146} &:= (1! \times 2!) + (3! \times 4!) && = 1^4 \times 2^1 \times (3^2 + 4^3)
\end{aligned}$$

$$\begin{aligned}
\mathbf{147} &:= (1! + 2!) + (3! \times 4!) && = 1^2 \times 2^1 + 3^4 + 4^3 \\
& && = 1^4 + 2^1 \times (3^2 + 4^3) \\
&:= (1! + 2!) + (4! \times 3!) && = 1^2 \times 2^1 + 4^3 + 3^4 \\
& && = (1^4 + 2^3) \times 4^2 + 3^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{150} &:= 1! \times 3! + 4! + 5! && = 1^5 \times 3^4 + 4^3 + 5^1 \\
\mathbf{151} &:= 1! + 3! + 4! + 5! && = 1^5 + 3^4 + 4^3 + 5^1 \\
\mathbf{152} &:= (1! + 4!) \times 3! + 2! && = (1^4 \times 4^2 + 3^1) \times 2^3 \\
\mathbf{168} &:= 1! \times 5! + 2! \times 4! && = (1^5 + 5^2 + 2^4) \times 4^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{192} &:= (1! \times 2! + 3!) \times 4! && = (1^4 + 2^3 + 3^1) \times 4^2 \\
&:= 5! + (1! + 2!) \times 4! && = (5^1 + 1^5) \times (2^4 + 4^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{216} &:= (1! + 3! + 2!) \times 4! && = 1^4 \times 3^3 \times (2^2 + 4^1) \\
\mathbf{246} &:= 1! \times 5! \times 2! + 3! && = (1^3 + 5^1) \times (2^5 + 3^2)
\end{aligned}$$

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$$\begin{aligned}
\mathbf{252} := (1! \times 2!) \times (3! + 5!) &= 1^3 \times 2^2 + 3^5 + 5^1 \\
&= (1^5 + 2^3) \times (3^1 + 5^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{265} &:= 1! + 2! \times 5! + 4! &&= 1^5 \times 2^2 + 5^1 + 4^4 \\
\mathbf{266} &:= (1! + 5!) \times 2! + 4! &&= 1^5 + 5^1 + 2^2 + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{288} &:= 1! \times 2! \times 3! \times 4! &&= 1^1 + 2^2 + 3^3 + 4^4 \\
&&&= 1^4 \times 2^3 \times 3^2 \times 4^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{289} &:= 1! + 2! \times 3! \times 4! &&= 1^4 + 2^3 \times 3^2 \times 4^1 \\
\mathbf{290} &:= (1! + 3! \times 4!) \times 2! &&= (1^2 \times 3^4 + 4^3) \times 2^1 \\
\mathbf{312} &:= (1! + 3! \times 2!) \times 4! &&= (1^2 + 3^3) \times 2^1 + 4^4 \\
\mathbf{336} &:= (1! + 3!) \times 2! \times 4! &&= (1^1 + 3^2) \times 2^3 + 4^4 \\
\mathbf{432} &:= (1! + 2!) \times 3! \times 4! &&= 1^4 \times 2^2 \times 3^3 \times 4^1 \\
\mathbf{732} &:= (2! + 5!) \times 1! \times 3! &&= 2^5 + 5^2 \times (1^1 + 3^3) \\
\mathbf{738} &:= (2! + 1! + 5!) \times 3! &&= 2^1 \times (1^2 + 5^3 + 3^5) \\
\mathbf{744} &:= 1! \times 3! \times 5! + 4! &&= 1^4 + 3^5 + 5^3 \times 4^1 \\
\mathbf{854} &:= (3! + 1!) \times (2! + 5!) &&= 3^5 \times (1^2 + 2^1) + 5^3 \\
\mathbf{870} &:= (1! + 4!) \times 3! + 6! &&= (1^6 \times 4^3 + 3^4) \times 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{1440} &:= 1! \times 2! \times 3! \times 5! &&= 1^3 \times 2^5 \times 3^2 \times 5^1 \\
\mathbf{1441} &:= 1! + 2! \times 3! \times 5! &&= 1^3 + 2^5 \times 3^2 \times 5^1 \\
\mathbf{1728} &:= 2! \times 3! \times (5! + 4!) &&= 2^2 \times (3^5 + 5^3) + 4^4 \\
\mathbf{2520} &:= (1! + 2!) \times (5! + 6!) &&= (1^5 + 2^6 + 5^1) \times 6^2 \\
\mathbf{3146} &:= (1! + 5!) \times (2! + 4!) &&= 1^2 + 5^5 + 2^4 + 4^1 \\
\mathbf{3168} &:= (2! \times 3! + 5!) \times 4! &&= 2^4 \times (3^2 + 5^3) + 4^5 \\
\mathbf{5904} &:= (2! \times 5! + 3!) \times 4! &&= 2^4 \times (5^3 + 3^5) + 4^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{207360} &:= 2! \times 3! \times 4! \times 6! &&= 2^2 \times (3^4 \times 4^3 + 6^6)
\end{aligned}$$

4.1.2 Five Terms Expressions

Below are five terms positive sign examples according to the expression (4).

$$\begin{aligned}
\mathbf{153} := 4! + 1! + 3! + 2! + 5! &= 4^1 \times (1^5 + 3^3) + 2^4 + 5^2 \\
&= 4^3 \times 1^5 + 3^2 + 2^4 \times 5^1 \\
&= 4^3 + (1^5 + 3^1) \times 2^4 + 5^2
\end{aligned}$$

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$$\begin{aligned}
\mathbf{156} := 1! \times 2! \times 3! + 5! + 4! \quad &= 1^5 + 2^4 + 3^1 \times 5^2 + 4^3 \\
\\
\mathbf{158} := 4! + 5! + (1! + 3!) \times 2! \quad &= 4^3 + (5^2 + 1^5) \times 3^1 + 2^4 \\
:= 4! + 5! + 2! \times (1! + 3!) \quad &= 4^3 + 5^1 \times (2^4 + 1^5) + 3^2 \\
\\
\mathbf{174} := 2! \times 4! \times 1! + 5! + 3! \quad &= 2^3 + (4^2 + 1^5) \times 5^1 + 3^4 \\
&= 2^5 + 4^3 + (1^4 + 5^2) \times 3^1 \\
\\
\mathbf{176} := 3! + (1! + 4!) \times 2! + 5! \quad &= 3^3 \times (1^5 + 4^1) + 2^4 + 5^2 \\
:= 3! + (4! + 1!) \times 2! + 5! \quad &= (3^1 + 4^2) \times 1^4 + 2^5 + 5^3 \\
&= 3^3 \times (4^1 + 1^5) + 2^4 + 5^2 \\
\\
\mathbf{180} := (1! \times 3! + 4!) \times 2! + 5! \quad &= 1^4 \times 3^3 + 4^1 \times 2^5 + 5^2 \\
\\
\mathbf{181} := 1! + (3! + 4!) \times 2! + 5! \quad &= (1^5 + 3^2) \times 4^1 + 2^4 + 5^3 \\
&= 1^4 + 3^3 + 4^1 \times 2^5 + 5^2 \\
\\
\mathbf{182} := (1! + 3! + 4!) \times 2! + 5! \quad &= 1^2 \times 3^4 + 4^3 + 2^5 + 5^1 \\
\\
\mathbf{198} := 3! + (2! + 1!) \times 4! + 5! \quad &= 3^2 + 2^4 \times 1^5 \times 4^1 + 5^3 \\
&= 3^4 + 2^5 + (1^3 + 4^2) \times 5^1 \\
\\
\mathbf{266} := 3! \times 1! \times 4! + 2! + 5! \quad &= 3^4 + (1^3 + 4^1) \times 2^5 + 5^2 \\
:= 3! \times 4! \times 1! + 2! + 5! \quad &= 3^2 + 4^1 \times (1^4 + 2^5) + 5^3 \\
:= 3! \times 4! + 2! \times 1! + 5! \quad &= 3^1 \times (4^3 + 2^4) + 1^5 + 5^2 \\
\\
\mathbf{270} := 3! \times 1! + 2! \times 5! + 4! \quad &= 3^4 + (1^5 + 2^3) \times (5^1 + 4^2) \\
:= 3! + 2! \times 5! \times 1! + 4! \quad &= (3^2 + 2^5) \times 5^1 + 1^4 + 4^3 \\
\\
\mathbf{272} := (1! + 4!) \times 3! + 2! + 5! \quad &= (1^5 \times 4^1) \times (3^3 + 2^4 + 5^2) \\
&= 1^4 \times 4^2 + 3^5 + 2^3 + 5^1 \\
:= 2! + (1! + 4!) \times 3! + 5! \quad &= (2^5 + 1^4 + 4^2) \times 3^1 + 5^3 \\
\\
\mathbf{276} := 2! \times 1! \times (3! + 5!) + 4! \quad &= 2^1 \times 1^5 \times (3^4 + 5^2) + 4^3 \\
:= 2! \times 1! \times (5! + 3!) + 4! \quad &= (2^4 + 1^5 + 5^2 + 3^3) \times 4^1 \\
:= 2! \times 1! \times (5! + 3!) + 4! \quad &= 2^1 \times 1^5 \times (5^2 + 3^4) + 4^3
\end{aligned}$$

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$$\begin{aligned}
\mathbf{277} := 1! + 2! \times (3! + 5!) + 4! &= 1^5 + 2^1 \times (3^4 + 5^2) + 4^3 \\
\\
\mathbf{278} := (1! + 3! + 5!) \times 2! + 4! &= (1^5 + 3^4 + 5^2) \times 2^1 + 4^3 \\
&= 1^5 \times 3^2 + 5^1 + 2^3 + 4^4 \\
:= (1! + 5! + 3!) \times 2! + 4! &= (1^5 + 5^2 + 3^4) \times 2^1 + 4^3 \\
\\
\mathbf{282} := 3! \times (2! + 1! + 4!) + 5! &= 3^2 \times (2^4 + 1^5) + 4^1 + 5^3 \\
\mathbf{290} := (1! + 3!) \times 4! + 5! + 2! &= 1^5 + 3^4 + 4^2 \times (5^1 + 2^3) \\
\mathbf{294} := 2! \times (4! \times 1! + 5!) + 3! &= 2^5 \times (4^1 + 1^4) + 5^3 + 3^2 \\
\mathbf{295} := 1! + 3! + 2! \times (4! + 5!) &= (1^5 \times 3^3 + 2^4 + 4^2) \times 5^1 \\
\mathbf{296} := (1! + 5! + 4!) \times 2! + 3! &= 1^5 + 5^1 \times (4^2 + 2^4 + 3^3) \\
\\
\mathbf{300} := 1! \times 2! \times (3! + 4! + 5!) &= (1^5 + 2^4 + 3^3 + 4^2) \times 5^1 \\
&= 1^4 + 2^5 + 3^1 \times (4^3 + 5^2) \\
\\
\mathbf{302} := (3! + 1! + 4! + 5!) \times 2! &= 3^1 \times (1^4 + 4^3 + 5^2) + 2^5 \\
&= 3^2 \times 1^3 + 4^4 + 5^1 + 2^5 \\
&= 3^4 + (1^5 + 4^2) \times (5^1 + 2^3) \\
\\
\mathbf{312} := 1! \times 4! \times (2! + 3!) + 5! &= 1^4 + 4^2 + (2^5 + 3^3) \times 5^1 \\
\\
\mathbf{313} := 1! + (3! + 2!) \times 4! + 5! &= (1^5 + 3^1) \times 2^3 + 4^4 + 5^2 \\
&= 1^4 \times 3^1 \times (2^5 + 4^3) + 5^2 \\
&= 1^5 \times 3^4 + 2^3 \times (4^1 + 5^2) \\
\\
\mathbf{320} := (1! + 4!) \times (2! + 3!) + 5! &= 1^2 \times 4^4 + 2^5 + 3^3 + 5^1 \\
:= (1! + 4!) \times (3! + 2!) + 5! &= (1^4 + 4^1) \times (3^3 + 2^5) + 5^2 \\
&= 1^5 + (4^2 + 3^4) \times 2^1 + 5^3 \\
\\
\mathbf{336} := (3! + 2! + 1!) \times 4! + 5! &= 3^3 \times 2^1 + 1^5 + 4^4 + 5^2 \\
&= 3^5 + (2^4 + 1^3) \times 4^1 + 5^2 \\
&= 3^5 + 2^3 + (1^4 + 4^2) \times 5^1 \\
\\
\mathbf{384} := 3! \times 1! \times 4! + 2! \times 5! &= 3^1 \times 1^5 + 4^2 \times 2^4 + 5^3 \\
&= 3^3 + (1^5 + 4^2) \times (2^4 + 5^1) \\
&= 3^5 \times 1^4 + 4^1 \times 2^2 + 5^3
\end{aligned}$$

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http://doi.org/10.5281/zenodo.2573569

$$= 3^5 + (1^4 + 4^2) \times 2^3 + 5^1$$

$$\mathbf{385} := 1! + 3! \times 4! + 2! \times 5! = (1^3 + 3^4) \times 4^1 + 2^5 + 5^2$$
$$= 1^4 + 3^5 + 4^1 \times 2^2 + 5^3$$
$$= 1^5 + 3^1 + 4^2 \times 2^4 + 5^3$$

$$\mathbf{386} := 2! \times (5! + 1!) + 3! \times 4! = (2^1 + 5^3) \times 1^4 + 3^5 + 4^2$$
$$= (2^3 + 5^1) \times (1^5 + 3^2) + 4^4$$
$$= 2^4 + 5^1 \times (1^5 + 3^2 + 4^3)$$

$$\mathbf{402} := (3! + 5!) \times (2! + 1!) + 4! = 3^5 + 5^3 + 2^1 \times (1^4 + 4^2)$$

$$\mathbf{408} := 4! \times 2! \times 1! \times 3! + 5! = 4^2 + 2^4 + 1^5 + 3^1 \times 5^3$$
$$= 4^3 + 2^2 \times 1^5 \times (3^4 + 5^1)$$
$$= 4^4 + (2^1 + 1^5) \times 3^2 + 5^3$$

$$\mathbf{409} := 1! + 3! \times 2! \times 4! + 5! = (1^3 + 3^1) \times 2^5 + 4^4 + 5^2$$
$$= (1^4 + 3^1) \times (2^5 + 4^3) + 5^2$$
$$= 1^5 \times 3^2 + (2^4 + 4^3) \times 5^1$$

$$\mathbf{410} := (1! + 3! \times 4!) \times 2! + 5! = 1^5 + 3^2 + (4^3 + 2^4) \times 5^1$$
$$:= 2! \times (3! \times 4! + 1!) + 5! = 2^2 + 3^4 + (4^3 + 1^5) \times 5^1$$
$$:= 2! \times (4! \times 3! + 1!) + 5! = 2^4 + 4^2 + 3^1 \times (1^5 + 5^3)$$

$$\mathbf{414} := 3! \times (2! \times 4! + 1!) + 5! = 3^2 + (2^4 + 4^3 + 1^5) \times 5^1$$
$$\mathbf{420} := (1! + 4!) \times 2! \times 3! + 5! = (1^4 + 4^1) \times (2^5 + 3^3 + 5^2)$$

$$\mathbf{432} := (3! \times 2! + 1!) \times 4! + 5! = 3^5 + (2^3 + 1^4) \times (4^2 + 5^1)$$
$$= 3^5 + 2^4 \times 1^2 \times 4^1 + 5^3$$

$$\mathbf{438} := 3! + (2! + 1!) \times (4! + 5!) = 3^4 + 2^5 + (1^2 + 4^3) \times 5^1$$

$$\mathbf{450} := (1! + 2!) \times (4! + 3! + 5!) = (1^5 + 2^4 + 4^3 + 3^2) \times 5^1$$
$$= 1^4 + (2^5 + 4^1) \times 3^2 + 5^3$$

$$\mathbf{456} := 4! \times (3! + 1!) \times 2! + 5! = 4^1 \times (3^4 \times 1^5 + 2^3 + 5^2)$$
$$= 4^1 + 3^3 + (1^5 + 2^4) \times 5^2$$

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http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{504} := 3! \times 4! + 5! \times (1! + 2!) &= 3^4 + (4^2 + 5^3) \times (1^5 + 2^1) \\
&= 3^5 + (4^1 + 5^2) \times (1^4 + 2^3) \\
:= 5! \times (1! + 2!) + 4! \times 3! &= 5^1 \times 1^3 + 2^4 \times 4^2 + 3^5 \\
&= 5^1 \times 1^4 + 2^2 \times 4^3 + 3^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{528} := (4! \times 3! \times 1! + 5!) \times 2! &= 4^1 \times (3^4 + 1^5) + 5^2 \times 2^3 \\
&= 4^2 \times 3^3 + (1^5 + 5^1) \times 2^4 \\
&= 4^3 + (3^1 + 1^5 + 5^2) \times 2^4
\end{aligned}$$

$$\mathbf{529} := 1! + (5! + 3! \times 4!) \times 2! = 1^5 + (5^1 + 3^3) \times 4^2 + 2^4$$

$$\begin{aligned}
\mathbf{530} := 2! \times (1! + 3! \times 4! + 5!) &= (2^3 + 1^5 + 3^4 + 4^2) \times 5^1 \\
&= (2^5 + 1^4 + 3^2 + 4^3) \times 5^1
\end{aligned}$$

$$\mathbf{540} := ((1! + 4!) \times 3! + 5!) \times 2! = 1^2 + 4^4 + 3^5 + 5^1 \times 2^3$$

$$\begin{aligned}
\mathbf{552} := (1! + 2!) \times 4! \times 3! + 5! &= (1^5 + 2^4) \times (4^1 + 3^3) + 5^2 \\
&= 1^5 \times 2^4 + 4^1 \times (3^2 + 5^3)
\end{aligned}$$

$$\begin{aligned}
\mathbf{576} := 2! \times (4! \times (1! + 3!) + 5!) &= 2^5 \times (4^2 + 1^4) + 3^3 + 5^1 \\
\mathbf{746} := 1! \times 5! \times 3! + 2! + 4! &= 1^5 + 5^1 \times (3^4 + 2^2 + 4^3) \\
\mathbf{747} := 1! + 2! + 3! \times 5! + 4! &= 1^4 \times 2^2 + 3^5 + 5^3 \times 4^1 \\
\mathbf{752} := 1! \times 3! + 2! + 4! + 6! &= (1^6 + 3^4) \times 2^3 + 4^2 \times 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{756} := 3! \times 1! \times (2! + 5!) + 4! &= (3^4 + 1^5) \times 2^3 + 5^2 \times 4^1 \\
:= 3! \times 1! \times (5! + 2!) + 4! &= (3^1 + 1^5) \times 5^3 + 2^4 \times 4^2 \\
&= 3^1 \times 1^5 + 5^4 + 2^3 \times 4^2
\end{aligned}$$

$$\mathbf{757} := 1! + (2! + 5!) \times 3! + 4! = 1^2 \times 2^5 + 5^1 \times (3^4 + 4^3)$$

$$\begin{aligned}
\mathbf{762} := 4! + (1! + 2! + 5!) \times 3! &= 4^1 \times 1^3 \times 2^5 + 5^4 + 3^2 \\
&= 4^3 \times 1^5 \times 2^1 + 5^4 + 3^2 \\
:= 4! + 3! \times (1! + 5! + 2!) &= (4^3 + 3^4 + 1^2) \times 5^1 + 2^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{768} := 1! \times 4! \times 2! + 3! \times 5! &= 1^3 + 4^4 + 2^1 \times 3^5 + 5^2 \\
&= 1^5 \times 4^2 \times (2^4 + 3^3 + 5^1)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 1^5 \times 4^4 + 2^2 \times (3^1 + 5^3)$$

$$\begin{aligned} \mathbf{769} := 1! + 2! \times 4! + 3! \times 5! &= (1^3 \times 2^5 + 4^2) \times 3^1 + 5^4 \\ &= 1^4 + 2^1 \times (4^2 + 3^5 + 5^3) \\ &= 1^5 + 2^4 \times (4^2 + 3^3 + 5^1) \end{aligned}$$

$$\begin{aligned} \mathbf{770} := 5! \times 3! + (4! + 1!) \times 2! &= (5^3 + 3^5 + 4^2 + 1^4) \times 2^1 \\ := 5! \times 3! + 2! \times (4! + 1!) &= 5^4 + 3^1 \times (2^5 + 4^2) + 1^3 \end{aligned}$$

$$\begin{aligned} \mathbf{774} := (1! \times 2!) \times 4! + 6! + 3! &= (1^6 \times 2^4 + 4^3 + 6^1) \times 3^2 \\ := (1! + 5!) \times 3! + 2! \times 4! &= (1^3 + 5^1) \times (3^4 + 2^5 + 4^2) \\ &= 1^5 + 5^3 + 3^4 \times (2^2 + 4^1) \end{aligned}$$

$$\begin{aligned} \mathbf{775} := 1! + 2! \times 4! + 6! + 3! &= 1^6 + (2^4 + 4^3 + 6^1) \times 3^2 \\ \mathbf{782} := (1! + 3! + 4!) \times 2! + 6! &= (1^6 \times 3^4 + 4^2) \times 2^3 + 6^1 \end{aligned}$$

$$\begin{aligned} \mathbf{792} := (1! + 2!) \times (5! + 3! \times 4!) &= 1^3 \times 2^1 \times (5^2 + 3^5) + 4^4 \\ &= 1^5 + 2^4 + 5^2 \times (3^3 + 4^1) \end{aligned}$$

$$\begin{aligned} \mathbf{798} := (1! + 2!) \times 4! + 3! + 6! &= 1^4 + 2^3 \times 4^1 + 3^6 + 6^2 \\ \mathbf{858} := (1! + 2!) \times 3! + 6! + 5! &= 1^6 + 2^5 + (3^3 + 6^1) \times 5^2 \end{aligned}$$

$$\begin{aligned} \mathbf{866} := 1! \times 3! \times 4! + 2! + 6! &= 1^4 + 3^6 + 4^3 + 2^1 \times 6^2 \\ := 2! + (5! + 4! \times 1!) \times 3! &= (2^5 + 5^3) \times (4^1 + 1^2) + 3^4 \end{aligned}$$

$$\begin{aligned} \mathbf{867} := 1! + 2! + (5! + 4!) \times 3! &= (1^5 \times 2^3 + 5^2 + 4^4) \times 3^1 \\ &= 1^4 \times 2^5 \times 5^2 + 4^3 + 3^1 \\ := 1! + 6! + 2! + 3! \times 4! &= (1^4 + 6^2) \times 2^1 + 3^6 + 4^3 \end{aligned}$$

$$\begin{aligned} \mathbf{872} := (1! + 4! + 5!) \times 3! + 2! &= (1^4 + 4^1) \times 5^3 + 3^5 + 2^2 \\ := 2! + (4! + 1!) \times 3! + 6! &= (2^2 + 4^1) \times (1^6 + 3^4) + 6^3 \end{aligned}$$

$$\begin{aligned} \mathbf{876} := (1! \times 2! + 4! + 5!) \times 3! &= 1^3 \times 2^2 + 4^1 + 5^4 + 3^5 \\ &= 1^3 + 2^5 + (4^4 + 5^2) \times 3^1 \end{aligned}$$

$$\begin{aligned} \mathbf{877} := 1! + (2! + 4! + 5!) \times 3! &= 1^3 + 2^2 + 4^1 + 5^4 + 3^5 \\ \mathbf{878} := 4! + (3! + 1!) \times (2! + 5!) &= (4^2 + 3^4) \times (1^5 + 2^3) + 5^1 \end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{882} := (1!+4!+2!+5!)\times 3! &= (1^2+4^4)\times 2^1+5^3+3^5\\
&= 1^5+4^1\times 2^3\times 5^2+3^4\\
:= 3!\times(1!+2!+4!)+6! &= 3^6+1^4+2^3+4^1\times 6^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{888} := 2!\times 4!+(1!+3!)\times 5! &= 2^2\times(4^1+1^3)+3^5+5^4\\
&= 2^2\times(4^3+1^5)+3^1+5^4\\
&= 2^3\times(4^1+1^5+3^4+5^2)\\
&= 2^5\times 4^2+1^4+3^1\times 5^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{890} := (1!+3!)\times 4!+6!+2! &= 1^2+3^6+4^3+6^1\times 2^4\\
&= 1^3+3^6+4^1\times 6^2+2^4\\
&= 1^6+3^2+4^1\times 6^3+2^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{902} := (1!+3!)\times(2!+4!)+6! &= (1^3+3^2)\times 2^6+4^4+6^1\\
&= (1^6+3^3)\times(2^4+4^2)+6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{913} := 1!+6!+4!\times(2!+3!) &= (1^4+6^1+4^2)\times 2^3+3^6\\
\mathbf{920} := (1!+4!)\times(2!+3!)+6! &= (1^6+4^2)\times 2^4+3^1\times 6^3\\
\mathbf{936} := (2!+3!+1!)\times 4!+6! &= 2^4\times 3^2\times(1^6+4^1)+6^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{966} := 1!\times 2!\times 5!+3!+6! &= 1^5+2^2\times 5^1+3^6+6^3\\
:= 1!\times 2!\times 5!+6!+3! &= (1^6+2^1)\times(5^2+6^3)+3^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{972} := 1!\times 2!\times(3!+5!)+6! &= 1^5\times 2^1+3^6+5^2+6^3\\
\mathbf{973} := 1!+2!\times(3!+5!)+6! &= 1^5+2^1+3^6+5^2+6^3\\
\mathbf{984} := (3!\times 1!+2!)\times 5!+4! &= 3^3+(1^4+2^5)\times(5^2+4^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{985} := 1!+4!+(3!+2!)\times 5! &= (1^5+4^1)\times 3^2\times 2^3+5^4\\
&= 1^5\times 4^4+3^3\times(2^1+5^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{992} := (2!+3!)\times(1!+5!)+4! &= 2^1\times(3^5\times 1^2+5^3)+4^4\\
&= 2^5\times(3^1+1^4+5^2)+4^3\\
&= 2^5+(3^2+1^4+5^1)\times 4^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{1008} := 1!\times 3!\times 2!\times 4!+6! &= 1^6\times 3^2\times 2^4+4^1\times 6^3\\
&= 1^6\times 3^4\times(2^3+4^1)+6^2
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$:= 3! \times (2! \times 4! \times 1! + 5!) \quad = (3^3 + 2^5) \times (4^2 + 1^4) + 5^1$$

$$\begin{aligned}
\textbf{1009} := 1! + 3! \times (2! \times 4! + 5!) &= (1^1 + 3^2) \times 2^5 + 4^3 + 5^4 \\
&= (1^2 + 3^1) \times (2^5 + 4^3) + 5^4 \\
&= (1^5 + 3^4) \times (2^3 + 4^1) + 5^2 \\
&= 1^3 \times 3^4 + 2^5 \times (4^1 + 5^2) \\
&= 1^5 \times 3^1 \times 2^3 \times 4^2 + 5^4 \\
:= 1! + 3! \times 2! \times 4! + 6! &= 1^2 \times 3^4 + 2^6 + 4^1 \times 6^3 \\
&= 1^2 \times 3^6 + 2^4 \times 4^1 + 6^3 \\
&= 1^4 \times 3^6 + 2^2 \times (4^3 + 6^1) \\
&= 1^6 + 3^2 \times 2^4 + 4^1 \times 6^3 \\
&= 1^6 + 3^4 \times (2^3 + 4^1) + 6^2
\end{aligned}$$

$$\begin{aligned}
\textbf{1010} := (1! + 3!) \times (4! + 5!) + 2! &= (1^4 + 3^2) \times (4^3 + 5^1 + 2^5) \\
&= 1^3 + 3^4 + (4^1 + 5^2) \times 2^5 \\
:= (1! + 3! \times 4!) \times 2! + 6! &= 1^2 + 3^6 + 4^1 \times 2^4 + 6^3 \\
&= 1^3 + 3^6 + 4^4 + 2^2 \times 6^1
\end{aligned}$$

$$\textbf{1020} := 2! \times (4! + 1!) \times 3! + 6! \quad = (2^3 + 4^1) \times (1^6 + 3^4) + 6^2$$

$$\begin{aligned}
\textbf{1032} := (2! \times 3! + 1!) \times 4! + 6! &= 2^4 \times 3^1 \times (1^6 + 4^2) + 6^3 \\
:= (2! + 3!) \times 4! + 5! + 6! &= 2^6 + 3^5 + 4^3 + 5^4 + 6^2
\end{aligned}$$

$$\begin{aligned}
\textbf{1056} := (1! + 3!) \times 4! \times 2! + 6! &= 1^6 \times 3^1 \times 4^4 + 2^3 \times 6^2 \\
\textbf{1086} := 3! + 5! \times (1! + 2!) + 6! &= 3^3 \times (5^2 + 1^5) + 2^6 \times 6^1
\end{aligned}$$

$$\begin{aligned}
\textbf{1104} := (1! + 2! + 3!) \times 5! + 4! &= (1^4 \times 2^3 + 3^5 + 5^2) \times 4^1 \\
&= (1^5 + 2^4 + 3^3) \times 5^2 + 4^1 \\
&= 1^4 + 2^1 \times 3^3 + 5^2 + 4^5
\end{aligned}$$

$$\begin{aligned}
\textbf{1152} := (4! + 5!) \times (3! \times 1! + 2!) &= (4^2 + 5^3 + 3^5) \times (1^4 + 2^1) \\
&= (4^4 + 5^1 + 3^3) \times 1^5 \times 2^2 \\
&= 4^4 + (5^2 + 3^1) \times 1^3 \times 2^5 \\
&= 4^4 + 5^1 + 3^3 \times (1^2 + 2^5) \\
&= 4^5 + (5^1 + 3^3) \times 1^4 \times 2^2
\end{aligned}$$

$$\textbf{1152} := 3! \times (5! + (1! + 2!) \times 4!) = (3^1 + 5^2) \times 1^3 \times 2^5 + 4^4$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= (3^1 + 5^3) \times 1^5 + 2^2 \times 4^4$$
$$= (3^3 + 5^1) \times 1^4 \times 2^2 + 4^5$$

1153 $:= 1! + (2! + 3!) \times (5! + 4!) = 1^3 + 2^5 \times (3^1 + 5^2) + 4^4$
$$= 1^4 + 2^2 \times (3^3 + 5^1) + 4^5$$
$$= 1^5 + 2^2 \times (3^3 + 5^1 + 4^4)$$

1160 $:= (1! + 4! + 5!) \times (2! + 3!) = 1^4 \times 4^5 + 5^3 + 2^1 + 3^2$

1176 $:= (1! + 3!) \times (2! \times 4! + 5!) = 1^2 + 3^5 \times 2^1 + 4^3 + 5^4$
$$= 1^5 + (3^3 + 2^4 + 4^1) \times 5^2$$
$:= (1! + 3!) \times (4! \times 2! + 5!) = (1^4 + 3^5) \times 4^1 + 2^3 \times 5^2$

1296 $:= (2! + 1! + 3!) \times (5! + 4!) = 2^2 \times (1^4 + 3^5) + 5^1 \times 4^3$
$$= 2^3 \times (1^5 + 3^4 + 5^1 \times 4^2)$$
$$= 2^4 + 1^2 + 3^5 \times 5^1 + 4^3$$

1442 $:= 1! \times 3! \times 5! + 2! + 6! = (1^6 + 3^2) \times 5^3 + 2^5 \times 6^1$
1443 $:= 1! + 3! \times 5! + 2! + 6! = 1^6 \times 3^5 + 5^2 \times 2^3 \times 6^1$
1448 $:= 2! + (1! + 5!) \times 3! + 6! = 2^5 \times 1^6 \times 5^2 + 3^1 \times 6^3$

1452 $:= (1! \times 2! + 5!) \times 3! + 6! = (1^6 + 2^1) \times (5^2 + 3^5 + 6^3)$
$:= 3! \times (2! + 5!) \times 1! + 6! = (3^5 + 2^2) \times 5^1 + 1^6 + 6^3$
$:= 3! \times 1! \times (2! + 5!) + 6! = 3^6 + (1^5 + 2^1) \times (5^2 + 6^3)$

1470 $:= (1! + 5! \times 2!) \times 3! + 4! = 1^2 + 5^1 \times (2^3 + 3^4) + 4^5$

1472 $:= (1! + 6!) \times 2! + 3! + 4! = 1^6 \times 6^4 + (2^3 + 3^1) \times 4^2$
$:= 2! \times (6! + 1!) + 3! + 4! = 2^6 + (6^1 + 1^3 + 3^4) \times 4^2$
$$= 2^6 + 6^4 + (1^2 + 3^3) \times 4^1$$

1476 $:= 1! \times 2! \times (3! + 6!) + 4! = ((1^6 + 2^4) \times 3^2 + 6^3) \times 4^1$
$:= 1! \times 2! \times (6! + 3!) + 4! = (1^6 \times 2^3 \times 6^2 + 3^4) \times 4^1$
$:= 3! \times (1! + 5!) \times 2! + 4! = (3^5 \times 1^4 + 5^3) \times 2^2 + 4^1$
$$= (3^5 + 1^3) \times 5^1 + 2^4 \times 4^2$$
$$= (3^5 + 1^4) \times 5^1 + 2^2 \times 4^3$$
$:= 3! \times (5! + 1!) \times 2! + 4! = 3^3 + 5^2 \times (1^1 + 2^4) + 4^5$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 3^5 \times 5^1 + 1^3 + 2^2 + 4^4$$

$$\begin{aligned}
\mathbf{1477} := 1! + 2! \times (6! + 3!) + 4! &= 1^6 + (2^3 \times 6^2 + 3^4) \times 4^1 \\
\mathbf{1478} := 4! + 2! \times (1! + 3! + 6!) &= 4^2 \times (2^6 + 1^4 + 3^3) + 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{1488} := (4! + 3! \times 5! \times 1!) \times 2! &= (4^1 + 3^5 + 5^3) \times 1^4 \times 2^2 \\
&= (4^3 + 3^1 + 5^2 + 1^5) \times 2^4 \\
&= 4^1 \times (3^5 + 5^3) \times 1^2 + 2^4 \\
&= 4^2 \times 3^4 + (5^1 + 1^3) \times 2^5 \\
&= 4^5 + (3^1 + 5^2 + 1^3) \times 2^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{1489} := 1! + 2! \times (4! + 3! \times 5!) &= (1^1 \times 2^5 + 4^3) \times 3^2 + 5^4 \\
&= 1^2 + 2^4 + 4^1 \times (3^5 + 5^3) \\
&= 1^5 \times 2^1 \times 4^2 \times 3^3 + 5^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{1490} := (1! + 5! \times 3! + 4!) \times 2! &= (1^3 + 5^1) \times 3^5 + 4^2 + 2^4 \\
&= 1^1 + 5^4 + 3^2 \times (4^3 + 2^5) \\
&= 1^5 + 5^4 + 3^3 \times 4^2 \times 2^1
\end{aligned}$$

$$\mathbf{1494} := 1! \times 2! \times (6! + 4!) + 3! = ((1^6 + 2^4) \times 6^1 + 4^3) \times 3^2$$

$$\begin{aligned}
\mathbf{1495} := 2! \times (6! + 4!) + 1! + 3! &= 2^2 + 6^4 + (4^3 + 1^6) \times 3^1 \\
&= 2^6 + 6^4 + (4^1 + 1^2) \times 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{1500} := 1! \times 2! \times (4! + 3! + 6!) &= (1^6 \times 2^2 + 4^3) \times 3^1 + 6^4 \\
:= 2! \times ((1! + 5!) \times 3! + 4!) &= (2^4 + 1^3) \times (5^2 + 3^1) + 4^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{1501} := 1! + 2! \times (4! + 3! + 6!) &= 1^6 + (2^2 + 4^3) \times 3^1 + 6^4 \\
\mathbf{1566} := 1! \times 6! \times 2! + 5! + 3! &= (1^2 + 6^1) \times (2^6 + 5^3) + 3^5 \\
\mathbf{1567} := 1! + 5! + 2! \times 6! + 3! &= (1^3 + 5^2) \times 2^5 + 6^1 + 3^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{1572} := 1! \times 5! + 2! \times (3! + 6!) &= (1^6 + 5^2 + 2^5) \times 3^3 + 6^1 \\
&= 1^3 + 5^1 \times (2^6 + 3^5) + 6^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{1584} := 1! \times 6! \times 2! + 4! \times 3! &= ((1^6 + 6^1) \times 2^4 + 4^3) \times 3^2 \\
&= 1^6 \times 6^4 + 2^3 \times 4^1 \times 3^2 \\
:= 1! \times 6! + (5! + 4!) \times 3! &= (1^6 + 6^3) \times 5^1 + 4^4 + 3^5
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$:= 4! + (2! \times 3! + 1!) \times 5! = (4^2 + 2^1) \times 3^4 + 1^5 + 5^3$$
$$= (4^2 + 2^5) \times (3^3 + 1^4 + 5^1)$$
$$= 4^5 + 2^2 \times (3^3 + 1^4) \times 5^1$$

$$\mathbf{1585} := 1! + 3! \times (4! + 2! \times 5!) = (1^1 + 3^2) \times (4^3 + 2^5) + 5^4$$
$$:= 1! + 3! \times 4! + 2! \times 6! = 1^6 + (3^2 \times 4^1) \times 2^3 + 6^4$$

$$\mathbf{1596} := 3! \times (2! \times (1! + 5!) + 4!) = 3^5 \times (2^2 + 1^1) + 5^3 + 4^4$$
$$\mathbf{1608} := (1! + 3!) \times 4! + 2! \times 6! = 1^2 \times 3^1 \times (4^4 + 2^6 + 6^3)$$

$$\mathbf{1688} := (2! + 3!) \times (5! + 1!) + 6! = 2^5 \times (3^2 \times 5^1 + 1^6) + 6^3$$
$$:= 2! \times (6! + 1! + 5!) + 3! = (2^3 \times 6^2 + 1^6) \times 5^1 + 3^5$$

$$\mathbf{1704} := (1! + 3!) \times 2! \times 5! + 4! = (1^5 + 3^4) \times 2^2 \times 5^1 + 4^3$$
$$= 1^2 + 3^3 \times 2^1 + 5^4 + 4^5$$

$$\mathbf{1728} := 2! \times (3! \times 4! \times 1! + 6!) = (2^2 \times 3^3) \times 4^1 \times 1^6 + 6^4$$
$$= (2^2 + 3^3 + 4^4 + 1^6) \times 6^1$$
$$= (2^4 + 3^3 + 4^1 + 1^6) \times 6^2$$
$$:= 2! \times (6! \times 1! + 3! \times 4!) = 2^1 \times 6^3 \times 1^6 + 3^4 \times 4^2$$
$$:= 2! \times 3! \times 1! \times (5! + 4!) = 2^1 + 3^3 \times (1^4 + 5^2) + 4^5$$
$$= 2^2 \times (3^5 \times 1^1 + 5^3) + 4^4$$
$$= 2^4 \times (3^3 + 1^5 + 5^1 \times 4^2)$$
$$= 2^5 \times (3^1 + 1^4) + 5^2 \times 4^3$$

$$\mathbf{1729} := 1! + (4! \times 3! + 6!) \times 2! = 1^6 + 4^2 \times 3^4 + 6^3 \times 2^1$$
$$:= 1! + (6! + 3! \times 4!) \times 2! = 1^6 + 6^4 + 3^3 \times 4^1 \times 2^2$$
$$:= 1! + 2! \times 3! \times (5! + 4!) = 1^1 + 2^2 \times (3^5 + 5^3) + 4^4$$
$$:= 1! + 3! \times 2! \times (4! + 5!) = (1^1 + 3^2) \times 2^3 + 4^5 + 5^4$$

$$\mathbf{1730} := (3! \times 4! + 1! + 6!) \times 2! = 3^3 \times 4^2 \times 1^6 + 6^4 + 2^1$$
$$= 3^4 \times 4^2 + (1^6 + 6^3) \times 2^1$$
$$:= 2! \times (1! + 3! \times (4! + 5!)) = (2^1 + 1^2) \times 3^3 + 4^5 + 5^4$$
$$= (2^3 + 1^1) \times 3^2 + 4^5 + 5^4$$
$$= 2^3 + (1^5 + 3^4) \times (4^2 + 5^1)$$

$$\mathbf{1734} := (1! + 2! \times (4! + 5!)) \times 3! = 1^3 + 2^5 + (4^2 + 5^1) \times 3^4$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{1740} := 2! \times ((1! + 4!) \times 3! + 6!) &= (2^1 + 1^6) \times 4^4 + 3^3 \times 6^2 \\
:= 2! \times 3! \times (1! + 5! + 4!) &= (2^5 + 3^3 + 1^4) \times (5^2 + 4^1) \\
&= 2^4 + (3^3 + 1^1) \times 5^2 + 4^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{1776} := 2! \times ((1! + 3!) \times 4! + 6!) &= (2^1 + 1^6 + 3^3) \times 4^2 + 6^4 \\
\mathbf{1848} := (1! + 3!) \times (5! \times 2! + 4!) &= (1^1 \times 3^4 + 5^3) \times 2^2 + 4^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{1872} := (1! + 2! \times 3!) \times (5! + 4!) &= (1^2 + 2^1) \times (3^5 + 5^3 + 4^4) \\
&= 1^1 \times 2^3 \times (3^4 + 5^2) + 4^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{2016} := (1! + 3!) \times (4! + 5!) \times 2! &= (1^3 \times 3^5 + 4^4 + 5^1) \times 2^2 \\
&= 1^4 \times 3^2 \times (4^3 + 5^1 \times 2^5)
\end{aligned}$$

$$\mathbf{2160} := 2! \times 3! \times 1! \times 5! + 6! = 2^3 \times 3^5 + (1^6 + 5^1) \times 6^2$$

$$\begin{aligned}
\mathbf{2184} := (2! + 1!) \times 3! \times 5! + 4! &= 2^3 \times (1^4 + 3^5 + 5^2 + 4^1) \\
:= 3! \times 5! \times (2! + 1!) + 4! &= 3^2 + 5^3 + 2^1 \times (1^4 + 4^5) \\
:= 5! \times (1! + 2!) \times 3! + 4! &= (5^1 + 1^5) \times (2^2 \times 3^3 + 4^4)
\end{aligned}$$

$$\mathbf{2190} := 4! + 3! + (2! + 1!) \times 6! = (4^4 + 3^3 \times 2^2 + 1^6) \times 6^1$$

$$\begin{aligned}
\mathbf{2202} := (2! + 1!) \times (3! + 6!) + 4! &= 2^1 \times (1^6 + 3^3 \times 6^2) + 4^4 \\
&= 2^1 \times 1^6 + 3^2 \times 6^3 + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{2280} := (1! + 3!) \times 5! + 6! \times 2! &= (1^6 + 3^5 + 5^1 + 6^2) \times 2^3 \\
:= (1! + 2!) \times 6! + 5! + 3! &= (1^6 + 2^5 + 6^3 + 5^1) \times 3^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{2304} := ((2! + 1!) \times 5! + 4!) \times 3! &= (2^5 \times (1^4 + 5^1) + 4^3) \times 3^2 \\
&= 2^4 \times 1^5 \times (5^3 + 4^2 + 3^1) \\
:= (1! + 2!) \times 6! + 3! \times 4! &= 1^6 \times 2^4 \times (6^2 + 3^3 \times 4^1) \\
:= (1! + 2!) \times 6! + 4! \times 3! &= 1^6 \times 2^4 \times (6^2 + 4^1 \times 3^3) \\
:= (2! + 1!) \times 6! + 5! + 4! &= 2^6 \times (1^5 + 6^1 + 5^2) + 4^4 \\
:= (4! + (1! + 2!) \times 5!) \times 3! &= (4^4 + 1^2) \times 2^3 + 5^1 + 3^5
\end{aligned}$$

$$\mathbf{2538} := (1! + 2!) \times (3! + 6! + 5!) = 1^5 + (2^6 + 3^1) \times 6^2 + 5^3$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{2592} := (1!+2!)\times(3!\times 4!+6!) &= (1^6+2^1)\times 3^3\times 4^2+6^4\\
:= (2!+1!)\times(5!+4!)\times 3! &= ((2^5\times 1^4)\times 5^2+4^3)\times 3^1\\
&= (2^3+1^2)\times(5^1+4^4)+3^5\\
&= (2^4\times 1^5\times 5^1+4^2)\times 3^3\\
&= 2^3\times(1^4+5^1\times 4^2+3^5)\\
&= 2^4\times(1^5+5^3+4^1\times 3^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{2889} := (1!+4!\times 5!+2!)+3! &= 1^1\times 4^3+5^2\times(2^5+3^4)\\
\mathbf{2898} := (1!+2!)\times 3!+4!\times 5! &= (1^4+2^5+3^2)\times(4^3+5^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{2912} := (1!+5!)\times 4!+3!+2! &= (1^5+5^2)\times(4^3+3^1\times 2^4)\\
&= 1^2\times 5^1\times 4^3+3^4\times 2^5\\
&= 1^4\times 5^1\times 4^3\times 3^2+2^5
\end{aligned}$$

$$\mathbf{2928} := 2!\times(6!+3!\times 5!+4!) = 2^6\times 6^2+3^5+5^3+4^4$$

$$\begin{aligned}
\mathbf{3008} := 3!+2!+5!\times(1!+4!) &= (3^2+2^5+5^1+1^4)\times 4^3\\
&= (3^3+2^5\times 5^1+1^4)\times 4^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{3027} := 1!+2!+(5!+3!)\times 4! &= (1^2\times 2^4)\times 5^3+3^1+4^5\\
\mathbf{3050} := 2!+(5!+1!+3!)\times 4! &= (2^5+5^1)\times(1^3+3^4)+4^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{3072} := (1!\times 2!+5!+3!)\times 4! &= ((1^4+2^5)\times 5^1+3^3)\times 4^2\\
&= 1^2\times 2^4\times(5^3+3^1)+4^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{3073} := 1!+(2!+3!+5!)\times 4! &= 1^2+2^4\times(3^1+5^3)+4^5\\
\mathbf{3096} := (2!+3!+1!+5!)\times 4! &= 2^5\times 3^4+(1^2+5^3)\times 4^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{3152} := 3!+(4!+2!)\times(1!+5!) &= (3^1+4^2+2^3)\times 1^4+5^5\\
&= 3^1+4^5+(2^4+1^2)\times 5^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{3168} := ((1!\times 2!)\times 3!+5!)\times 4! &= (1^4+2^3)\times 3^1+5^5+4^2\\
:= (1!\times 2!\times 3!+5!)\times 4! &= 1^1\times 2^4\times(3^2+5^3)+4^5\\
:= (1!\times 3!\times 2!+5!)\times 4! &= 1^3\times 3^1\times(2^5\times 5^2+4^4)\\
&= 1^4\times 3^2\times(2^5+5^1\times 4^3)
\end{aligned}$$

$$\begin{aligned}
\mathbf{3169} := 1!+(3!\times 2!+5!)\times 4! &= 1^3+3^1\times(2^5\times 5^2+4^4)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 1^4 + 3^2 \times (2^5 + 5^1 \times 4^3)$$

$$\mathbf{3192} := (3! \times 2! + 1! + 5!) \times 4! = 3^1 \times (2^4 + 1^3) + 5^5 + 4^2$$
$$= 3^1 + (2^2 + 1^5) \times 5^4 + 4^3$$

$$\mathbf{3200} := (4! + 1!) \times (2! + 3! + 5!) = (4^2 + 1^4 + 2^3) \times 3^1 + 5^5$$
$$= 4^2 \times (1^4 + 2^1) + 3^3 + 5^5$$
$$= 4^3 \times 1^4 + 2^1 + 3^2 + 5^5$$
$$= 4^5 + (1^2 + 2^4) \times (3^1 + 5^3)$$

$$\mathbf{3216} := (5! + (3! + 1!) \times 2!) \times 4! = (5^2 + 3^5) \times 1^4 \times (2^3 + 4^1)$$
$$= (5^5 + 3^3) \times 1^2 + 2^4 \times 4^1$$
$$= 5^5 + 3^2 \times (1^4 + 2^1) + 4^3$$

$$\mathbf{3246} := 3! + (2! + 4! + 1!) \times 5! = 3^1 \times (2^4 + 4^5) + 1^2 + 5^3$$
$$= 3^4 + 2^3 \times (4^1 + 1^2) + 5^5$$

$$\mathbf{3276} := (5! + 3!) \times 1! \times (2! + 4!) = (5^3 \times 3^2 + 1^4) \times 2^1 + 4^5$$
$$:= (5! + 3!) \times 1! \times (4! + 2!) = 5^5 + 3^3 \times (1^2 + 4^1) + 2^4$$

$$\mathbf{3277} := 1! + (2! + 4!) \times (3! + 5!) = 1^4 \times 2^3 \times (4^2 + 3^1) + 5^5$$

$$\mathbf{3300} := (1! + 4!) \times (5! + 3! \times 2!) = (1^5 + 4^1 \times (5^3 + 3^4)) \times 2^2$$

$$\mathbf{3302} := (4! + 2!) \times (1! + 5! + 3!) = 4^5 + (2^4 + 1^1) \times (5^3 + 3^2)$$
$$:= (4! + 2!) \times (3! + 1! + 5!) = 4^2 \times (2^3 + 3^1) + 1^4 + 5^5$$

$$\mathbf{3312} := (5! + 3! \times (1! + 2!)) \times 4! = (5^3 + 3^4 + 1^5) \times 2^2 \times 4^1$$
$$= (5^3 + 3^5) \times (1^4 + 2^2 + 4^1)$$
$$:= (5! + 3! \times (2! + 1!)) \times 4! = 5^5 + (3^1 + 2^3) \times (1^4 + 4^2)$$

$$\mathbf{3603} := 1! + 2! + (3! + 4!) \times 5! = (1^5 + 2^1) \times (3^2 \times 4^3 + 5^4)$$

$$\mathbf{3607} := 1! + 3! + 4! \times 5! + 6! = 1^6 \times 3^5 + 4^1 \times (5^4 + 6^3)$$

$$\mathbf{3632} := 2! + (1! + 5!) \times (3! + 4!) = 2^2 \times 1^1 \times (5^4 + 3^3) + 4^5$$

$$\mathbf{3648} := 1! \times 6! + (2! + 5!) \times 4! = (1^5 + 6^2) \times 2^6 + 5^1 \times 4^4$$
$$:= 1! \times 6! + (5! + 2!) \times 4! = (1^4 \times 6^2 + 5^1) \times 2^6 + 4^5$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{3649} &:= 1! + 4! \times (2! + 5!) + 6! && = 1^4 + 4^5 + 2^6 \times (5^1 + 6^2)\\
\mathbf{3661} &:= 1! + (2! + 5!) \times (3! + 4!) && = (1^5 + 2^3) \times 5^1 \times 3^4 + 4^2\\
\mathbf{3690} &:= (1! + 2! + 5!) \times (3! + 4!) && = (1^2 + 2^1) \times (5^3 + 3^4 + 4^5)\\
\mathbf{3722} &:= 2! + (4! + 3! + 1!) \times 5! && = (2^3 + 4^5) \times 3^1 + 1^2 + 5^4\\
\mathbf{3744} &:= (1! \times 3! + 5!) \times 4! + 6! && = (1^6 \times 3^5 + 5^3 + 4^4) \times 6^1\\
\mathbf{3745} &:= 1! + (3! + 5!) \times 4! + 6! && = 1^6 + (3^5 + 5^3 + 4^4) \times 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{3840} &:= (1! \times 4! + 2! + 3!) \times 5! && = (1^4 + 4^3) \times (2^1 + 3^2) + 5^5\\
&&& = 1^4 \times 4^3 \times (2^5 + 3^1 + 5^2)\\
&:= 1! \times 5! \times (4! + 2!) + 6! && = (1^5 + 5^1) \times 4^4 + 2^6 \times 6^2
\end{aligned}$$

$$\mathbf{3841} := 1! + (4! + 2! + 3!) \times 5! \quad = 1^4 + 4^3 \times (2^5 + 3^1 + 5^2)$$

$$\begin{aligned}
\mathbf{3872} &:= (1! + 5!) \times (2! + 3! + 4!) && = (1^3 + 5^1 \times 2^5 + 3^4) \times 4^2\\
&:= (1! + 5!) \times (3! + 4! + 2!) && = (1^3 + 5^1 + 3^2) \times 4^4 + 2^5
\end{aligned}$$

$$\mathbf{3960} := (2! + 4! + 1! + 3!) \times 5! \quad = (2^3 + 4^4) \times (1^5 + 3^2 + 5^1)$$

$$\begin{aligned}
\mathbf{4320} &:= (4! + 2! \times 3! \times 1!) \times 5! && = (4^2 + 2^4) \times 3^3 \times 1^5 \times 5^1\\
&&& = (4^3 + 2^4) \times 3^2 \times (1^5 + 5^1)\\
&&& = (4^3 + 2^5) \times 3^2 \times 1^4 \times 5^1\\
&&& = (4^4 + 2^5) \times (3^2 + 1^3 + 5^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{4321} &:= 1! + (3! \times 2! + 4!) \times 5! && = 1^4 + 3^2 \times (2^5 + 4^3) \times 5^1\\
&&& = 1^5 + 3^3 \times (2^4 + 4^2) \times 5^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{4326} &:= 3! + 5! \times 4! + 2! \times 6! && = 3^6 + 5^5 + 4^2 \times 2^4 + 6^3\\
\mathbf{4344} &:= 2! \times 6! + (1! + 5!) \times 4! && = 2^5 + 6^2 \times (1^4 + 5^1) + 4^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{4347} &:= 1! + 2! + 4! + 6! \times 3! && = (1^4 + 2^6 + 4^1) \times (6^2 + 3^3)\\
&&& = (1^4 + 2^6 + 4^2 \times 6^1) \times 3^3\\
&&& = (1^6 + 2^4 + 4^1 \times 6^2) \times 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{4352} &:= (1! + 6!) \times 3! + 2! + 4! && = (1^1 + 6^2 + 3^3) \times 2^6 + 4^4\\
&&& = (1^3 + 6^1 + 3^2) \times 2^4 + 4^6\\
&&& = (1^4 + 6^2 + 3^3) \times (2^6 + 4^1)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{4368} &:= 1! \times 2! \times 4! + 3! \times 6! && = 1^3 \times 2^6 \times 4^2 \times 3^1 + 6^4 \\
\mathbf{4369} &:= 1! + 2! \times 4! + 3! \times 6! && = 1^3 + 2^6 \times 4^2 \times 3^1 + 6^4 \\
\mathbf{4374} &:= 2! \times 4! + (1! + 6!) \times 3! && = (2^4 + 4^3 + 1^6) \times 6^1 \times 3^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{4440} &:= (1! + 4!) \times 5! + 2! \times 6! && = 1^6 + 4^2 + 5^5 + 2^1 + 6^4 \\
&:= (1! + 4! + 2! \times 3!) \times 5! && = 1^5 + 4^3 + (2^2 + 3^1) \times 5^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{4442} &:= 1! \times 5! + 3! \times 6! + 2! && = (1^3 + 5^1) \times 3^6 + 6^2 + 2^5 \\
\mathbf{4448} &:= (1! + 6!) \times 3! + 2! + 5! && = 1^5 + 6^1 \times (3^6 + 2^3) + 5^2 \\
\mathbf{4453} &:= 1! + 3! \times (2! + 6!) + 5! && = (1^5 + 3^6 + 2^3) \times 6^1 + 5^2 \\
\mathbf{4466} &:= 1! \times 2! + (6! + 4!) \times 3! && = 1^1 + 2^3 \times 6^2 + 4^6 + 3^4 \\
\mathbf{4470} &:= (1! + 6!) \times 3! + 4! + 5! && = 1^4 \times 6^1 + 3^5 + 4^6 + 5^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{4472} &:= 2! + 3! \times (1! + 4! + 6!) && = 2^2 \times (3^6 + 1^1 + 4^3) + 6^4 \\
& && = 2^4 \times (3^2 + 1^1) + 4^6 + 6^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{4476} &:= (3! \times 1!) \times (2! + 6! + 4!) && = (3^4 + 1^2) \times 2^1 + 6^3 + 4^6 \\
&:= (3! \times 1!) \times (4! + 6! + 2!) && = (3^6 + (1^4 + 4^3) \times 6^1) \times 2^2
\end{aligned}$$

$$\mathbf{4482} := (1! + 4! + 6! + 2!) \times 3! \quad = ((1^4 + 4^2) \times 6^1 + 2^6) \times 3^3$$

$$\begin{aligned}
\mathbf{4560} &:= (4! + 2! \times (1! + 3!)) \times 5! && = (4^2 + 2^5 \times (1^4 + 3^3)) \times 5^1 \\
& && = 4^1 + (2^4 + 1^3) \times (3^5 + 5^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{4562} &:= 2! \times (1! + 5!) + 3! \times 6! && = 2^5 + (1^3 + 5^2 + 3^6) \times 6^1 \\
\mathbf{4596} &:= (2! + 4! + 6!) \times 3! + 5! && = 2^4 + 4^6 + 6^3 + 3^5 + 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{4608} &:= 1! \times 3! \times (2! \times 4! + 6!) && = ((1^6 + 3^1) \times 2^4 + 4^3) \times 6^2 \\
&:= 1! \times 3! \times (4! \times 2! + 6!) && = ((1^6 + 3^3) \times 4^1 + 2^4) \times 6^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{4609} &:= 1! + 3! \times (4! \times 2! + 6!) && = 1^2 \times 3^4 + 4^6 + 2^1 \times 6^3 \\
\mathbf{4614} &:= 3! \times (1! + 2! \times 4! + 6!) && = (3^2 + 1^6 + 2^3) \times 4^4 + 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{4752} &:= (4! \times (2! + 1!) + 6!) \times 3! && = (4^1 \times 2^2) \times 1^6 \times (6^3 + 3^4) \\
&:= (6! + (1! + 2!) \times 4!) \times 3! && = 6^2 \times (1^4 + 2^6 + 4^3 + 3^1)
\end{aligned}$$

$$\mathbf{5040} := 2! \times 6! + (3! + 4!) \times 5! \quad = 2^4 \times 6^2 + 3^5 + 4^6 + 5^3$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$:= 5! \times ((2! + 1!) \times 3! + 4!) = 5^4 \times 2^3 + (1^5 + 3^2) \times 4^1$$
$$:= 5! \times (3! \times (2! + 1!) + 4!) = (5^4 + 3^1) \times 2^3 \times 1^5 + 4^2$$

$$\mathbf{5052} := (1! \times 2! + 5! + 6!) \times 3! = (1^2 + 2^5) \times (5^3 + 6^1) + 3^6$$
$$\mathbf{5053} := 1! + (5! + 6! + 2!) \times 3! = (1^5 + 5^1 \times 6^3) \times 2^2 + 3^6$$
$$\mathbf{5064} := 1! \times 4! + 3! \times (6! + 5!) = 1^5 + 4^3 + 3^6 \times 6^1 + 5^4$$
$$\mathbf{5072} := 1! \times 2! + 3! + 7! + 4! = (1^4 \times 2^7 + 3^3 \times 7^1) \times 4^2$$
$$\mathbf{5073} := 1! + 2! + 3! + 7! + 4! = 1^4 + (2^7 + 3^3 \times 7^1) \times 4^2$$
$$\mathbf{5076} := 1! \times 2! \times 3! + 7! + 4! = 1^4 \times 2^1 \times (3^7 + 7^3) + 4^2$$
$$\mathbf{5077} := 1! + 2! \times 3! + 7! + 4! = 1^4 + 2^1 \times (3^7 + 7^3) + 4^2$$
$$\mathbf{5078} := 2! \times (1! + 3!) + 7! + 4! = 2^1 \times (1^4 + 3^7 + 7^3) + 4^2$$
$$\mathbf{5094} := 1! \times 3! + 7! + 4! \times 2! = (1^4 + 3^7 + 7^3 + 4^2) \times 2^1$$
$$\mathbf{5162} := 2! + 5! + (1! + 3!) \times 6! = 2^5 + (5^3 + 1^2 + 3^6) \times 6^1$$

$$\mathbf{5173} := 1! + 5! + 2! \times 3! + 7! = (1^7 + 5^3) \times (2^5 + 3^2) + 7^1$$
$$= 1^3 \times 5^5 + 2^7 \times (3^2 + 7^1)$$

$$\mathbf{5174} := (1! + 3!) \times (6! + 2!) + 5! = 1^3 \times 3^6 \times 6^1 + 2^5 \times 5^2$$
$$\mathbf{5186} := 1! \times 2! + 4! + 5! + 7! = 1^7 + 2^4 + 4^5 \times 5^1 + 7^2$$
$$\mathbf{5196} := (1! \times 2! + 4!) \times 3! + 7! = 1^7 + 2^2 + 4^3 \times 3^4 + 7^1$$
$$\mathbf{5222} := (1! + 3!) \times (4! + 2! + 6!) = 1^6 \times 3^4 \times 4^3 + 2^1 + 6^2$$
$$\mathbf{5280} := (1! + 3!) \times 6! + 5! \times 2! = (1^6 + 3^1 + 6^2 + 5^3) \times 2^5$$
$$\mathbf{5340} := 2! \times 3! \times (1! + 4!) + 7! = 2^4 + 3^7 + 1^1 + 4^3 \times 7^2$$

$$\mathbf{5376} := (1! + 3!) \times (2! \times 4! + 6!) = ((1^3 + 3^2) \times 2^6 + 4^4) \times 6^1$$
$$= (1^6 + 3^3) \times (2^4 + 4^2) \times 6^1$$
$$:= (1! + 3!) \times (4! \times 2! + 6!) = (1^6 \times 3^1) \times 4^3 + 2^2 \times 6^4$$
$$:= 2! \times (1! + 3!) \times 4! + 7! = (2^7 + (1^4 + 3^2) \times 4^3) \times 7^1$$

$$\mathbf{5376} := 2! \times (1! + 3!) \times 4! + 7! = 2^7 \times (1^2 + 3^3) + 4^4 \times 7^1$$
$$\mathbf{5472} := 7! + 4! \times (1! + 2!) \times 3! = (7^2 + 4^3 + 1^7) \times 2^4 \times 3^1$$
$$\mathbf{5760} := 1! \times 3! \times (2! \times 5! + 6!) = (1^6 \times 3^1 + 2^5 + 5^3) \times 6^2$$
$$\mathbf{5761} := 1! + 3! \times (2! \times 5! + 6!) = 1^6 + (3^1 + 2^5 + 5^3) \times 6^2$$
$$\mathbf{5768} := (1! + 4! \times 5!) \times 2! + 3! = 1^2 \times 4^5 \times 5^1 + 2^3 \times 3^4$$

$$\mathbf{5772} := 1! \times 2! \times (4! \times 5! + 3!) = (1^1 + 2^2) \times 4^5 + 5^4 + 3^3$$
$$= (1^5 + 2^3) \times (4^2 + 5^4) + 3^1$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$:= 7! + 3! \times (2! \times 1! + 5!) \quad = (7^2 \times 3^3) \times 2^1 + 1^7 + 5^5$$

$$\begin{aligned} \textbf{5773} := 1! + (4! \times 5! + 3!) \times 2! &= (1^2 + 4^5) \times 5^1 + 3^4 \times 2^3 \\ := 1! + 7! + 3! \times (2! + 5!) &= 1^7 + (7^2 \times 3^3) \times 2^1 + 5^5 \end{aligned}$$

$$\begin{aligned} \textbf{5778} := 3! \times (2! + 1! + 5!) + 7! &= 3^3 \times ((2^5 + 1^7) \times 5^1 + 7^2) \\ &= 3^3 \times (2^5 + (1^7 + 5^2) \times 7^1) \end{aligned}$$

$$\textbf{5792} := (1! + 6!) \times (2! + 3!) + 4! = (1^1 + 6^3 + 2^6 + 3^4) \times 4^2$$

$$\begin{aligned} \textbf{5881} := 1! + (3! + 2!) \times 6! + 5! &= (1^5 + 3^6) \times 2^3 + 6^2 + 5^1 \\ &= 1^1 \times 3^6 + 2^5 \times (6^2 + 5^3) \end{aligned}$$

$$\textbf{5882} := (1! + 3!) \times (5! + 6!) + 2! = 1^1 + 3^6 + (5^3 + 6^2) \times 2^5$$

$$\textbf{5888} := (2! + 3!) \times (1! + 6!) + 5! = 2^1 \times (3^5 + 1^6) + 6^3 \times 5^2$$

$$\begin{aligned} \textbf{5904} := (2! \times 5! \times 1! + 3!) \times 4! &= 2^2 \times (5^1 \times (1^3 + 3^5) + 4^4) \\ &= 2^2 \times (5^3 + 1^4 + 3^5) \times 4^1 \\ &= 2^4 \times 5^3 + (1^1 + 3^5) \times 4^2 \end{aligned}$$

$$\begin{aligned} \textbf{5905} := 1! + (2! \times 5! + 3!) \times 4! &= 1^1 + 2^4 + (5^3 + 3^5) \times 4^2 \\ := 1! + 7! + 6! + 3! \times 4! &= (1^7 + 7^1) \times 6^3 + 3^4 + 4^6 \end{aligned}$$

$$\begin{aligned} \textbf{5952} := (1! \times 2! + 3!) \times (4! + 6!) &= 1^6 \times 2^2 \times (3^1 \times 4^3 + 6^4) \\ := (2! \times (1! + 5!) + 3!) \times 4! &= 2^4 \times 1^2 \times (5^3 + 3^5 + 4^1) \end{aligned}$$

$$\begin{aligned} \textbf{5953} := 1! + (2! + 3!) \times (4! + 6!) &= 1^6 + 2^2 \times (3^1 \times 4^3 + 6^4) \\ \textbf{5960} := (1! + 4! + 6!) \times (3! + 2!) &= (1^6 \times 4^3 + 6^2 \times 3^4) \times 2^1 \end{aligned}$$

$$\begin{aligned} \textbf{6000} := 7! \times 1! + (2! + 3!) \times 5! &= (7^1 \times 1^7 + 2^5 + 3^2) \times 5^3 \\ &= (7^3 + 1^2) \times 2^1 + 3^7 + 5^5 \end{aligned}$$

$$\begin{aligned} \textbf{6001} := 1! + 5! \times (2! + 3!) + 7! &= 1^7 + 5^3 \times (2^5 + 3^2 + 7^1) \\ \textbf{6012} := 2! \times ((1! + 4!) \times 5! + 3!) &= (2^3 + 1^1) \times (4^2 + 5^4) + 3^5 \end{aligned}$$

$$\begin{aligned} \textbf{6048} := 2! \times (5! + 3!) \times 1! \times 4! &= 2^3 \times (5^4 + 3^1) \times 1^2 + 4^5 \\ &= 2^5 \times 5^2 + (3^4 + 1^1) \times 4^3 \end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 2^5 + (5^3 \times 3^1 + 1^4) \times 4^2$$

$$\mathbf{6049} := 1! + (3! + 5!) \times 2! \times 4! = 1^2 + (3^1 + 5^4) \times 2^3 + 4^5$$
$$= 1^5 + 3^1 \times (5^3 \times 2^4 + 4^2)$$

$$\mathbf{6096} := (1! + 3! + 5!) \times 4! \times 2! = ((1^4 + 3^1) \times 5^3 + 4^5) \times 2^2$$
$$= (1^3 + 3^5 + 5^1 \times 4^4) \times 2^2$$
$$= (1^5 + 3^1) \times (5^3 + 4^4) \times 2^2$$
$$= 1^3 + 3^5 \times 5^2 + 4^1 + 2^4$$
$$= 1^4 \times 3^1 \times (5^3 \times 4^2 + 2^5)$$

$$\mathbf{6480} := (1! \times 4! \times 2! + 3!) \times 5! = (1^4 \times 4^2 + 2^5) \times 3^3 \times 5^1$$
$$= 1^3 + 4^1 + (2^4 + 3^5) \times 5^2$$
$$:= 1! \times 4! \times 5! \times 2! + 6! = (1^5 + 4^2 \times 5^1) \times 2^6 + 6^4$$
$$= 1^2 \times 4^5 \times 5^1 + 2^6 + 6^4$$

$$\mathbf{6481} := 1! + (2! \times 4!) \times 5! + 6! = 1^2 + 2^6 + 4^5 \times 5^1 + 6^4$$
$$:= 1! + (3! + 2! \times 4!) \times 5! = (1^1 + 3^5) \times (2^3 + 4^2) + 5^4$$
$$= 1^4 + 3^3 \times (2^5 + 4^2) \times 5^1$$

$$\mathbf{6492} := (1! \times 3! + 6!) \times 2! + 7! = 1^6 + 3^1 + 6^3 + 2^7 \times 7^2$$

$$\mathbf{6528} := 2! \times 1! \times (6! + 4!) + 7! = 2^7 \times (1^6 + 6^2) + 4^4 \times 7^1$$
$$:= 4! \times 2! \times (1! + 5!) + 6! = (4^2 + 2^5) \times 1^6 + 5^1 \times 6^4$$
$$= (4^4 + 2^5 \times (1^6 + 5^2)) \times 6^1$$

$$\mathbf{6534} := (1! + 5!) \times (2! \times 4! + 3!) = 1^2 + 5^5 \times 2^1 + 4^4 + 3^3$$

$$\mathbf{6600} := (1! + 3! + 2! \times 4!) \times 5! = (1^3 + 3^5 + 2^4 + 4^1) \times 5^2$$
$$= 1^3 + 3^1 + 2^2 \times (4^5 + 5^4)$$

$$\mathbf{6696} := (1! + 3! + 2!) \times (4! + 6!) = 1^1 \times 3^4 \times (2^6 + 4^2) + 6^3$$

$$\mathbf{6720} := (2! \times (4! + 1!) + 3!) \times 5! = (2^5 + 4^2) \times (1^4 + 3^3) \times 5^1$$
$$= (2^5 + 4^2 \times (1^3 + 3^4)) \times 5^1$$
$$= 2^5 \times (4^1 \times 1^2 + 3^4 + 5^3)$$
$$:= 5! \times (1! + 4!) \times 2! + 6! = (5^1 + 1^6) \times 4^5 + 2^4 \times 6^2$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 5^1 \times 1^6 \times (4^2 + 2^5 + 6^4)$$

$$\begin{aligned}
\mathbf{7200} := 2! \times (6! \times 1! + 4! \times 5!) &= (2^5 \times (6^2 + 1^6) + 4^4) \times 5^1 \\
:= 2! \times 1! \times (3! + 4!) \times 5! &= (2^3 \times (1^5 + 3^1) + 4^4) \times 5^2 \\
&= (2^3 + 1^5 + 3^4) \times 4^2 \times 5^1 \\
&= (2^5 + (1^4 + 3^1) \times 4^3) \times 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{7201} := 1! + 2! \times (4! + 3!) \times 5! &= 1^3 + 2^5 + 4^4 \times (3^1 + 5^2) \\
&= 1^4 + (2^5 + 4^3) \times 3^1 \times 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{7206} := 3! + 7! + (1! + 2!) \times 6! &= (3^6 + 7^3 + 1^2 + 2^7) \times 6^1 \\
\mathbf{7218} := (3! + 6!) \times (1! + 2!) + 7! &= 3^6 + 6^3 + 1^1 + 2^7 \times 7^2 \\
\mathbf{7440} := 2! \times ((4! + 1!) \times 5! + 6!) &= 2^6 \times 4^2 \times (1^5 + 5^1) + 6^4 \\
\mathbf{7560} := (2! + 3! + 1!) \times (5! + 6!) &= 2^3 \times (3^6 + (1^5 + 5^1) \times 6^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{7922} := 1! \times 2! + 7! + 4! \times 5! &= 1^1 + 2^7 \times 7^2 + 4^5 + 5^4 \\
&= 1^2 + 2^7 + 7^1 \times 4^5 + 5^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{8161} := 1! + (2! + 4!) \times 5! + 7! &= (1^2 \times 2^7 + 4^5) \times 5^1 + 7^4 \\
\mathbf{8280} := (1! + 2! + 4!) \times 5! + 7! &= (1^7 + 2^2) \times (4^5 + 5^4 + 7^1) \\
\mathbf{8676} := (1! + 6!) \times 3! \times 2! + 4! &= 1^1 \times 6^2 + 3^3 \times (2^6 + 4^4) \\
\mathbf{8760} := 1! \times 3! \times 2! \times 6! + 5! &= 1^5 + 3^2 + (2^6 + 6^1) \times 5^3 \\
\mathbf{8761} := 1! + 2! \times 3! \times 6! + 5! &= 1^6 \times 2^3 + 3^5 \times 6^2 + 5^1 \\
\mathbf{8762} := 1! + 3! \times 6! \times 2! + 5! &= 1^6 + 3^5 \times 6^2 + 2^3 + 5^1 \\
\mathbf{8772} := 2! \times (6! + 1!) \times 3! + 5! &= (2^5 + 6^2) \times (1^6 + 3^1 + 5^3) \\
\mathbf{8784} := 1! \times 3! \times (4! + 2! \times 6!) &= 1^4 \times 3^6 \times (4^1 + 2^3) + 6^2 \\
\mathbf{8785} := 1! + 3! \times (4! + 2! \times 6!) &= 1^4 + 3^6 \times (4^1 + 2^3) + 6^2 \\
\mathbf{8880} := 1! \times 2! \times (5! + 3! \times 6!) &= (1^2 + 2^1) \times 5^3 + 3^6 + 6^5 \\
\mathbf{8940} := 2! \times (1! + 4! + 6!) \times 3! &= (2^1 + 1^6) \times (4^3 + 6^2 \times 3^4)
\end{aligned}$$

$$\begin{aligned}
\mathbf{9072} := (2! + 1!) \times 4! \times (5! + 3!) &= 2^4 \times 1^5 \times (4^2 + 5^1) \times 3^3 \\
&= 2^5 \times 1^3 + 4^2 \times 5^1 \times 3^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{9360} := ((1! + 2!) \times 4! + 3!) \times 5! &= 1^4 + (2^1 + 4^5) \times 3^2 + 5^3 \\
:= (1! \times 5! + 6! \times 2!) \times 3! &= 1^6 + 5^3 + (6^2 + 2^1) \times 3^5 \\
:= 1! \times 5! + 6! \times 2! \times 3! &= 1^2 + 5^3 + 6^5 + 2^1 \times 3^6
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{9361} := 1! + 3! \times (2! \times 6! + 5!) &= (1^2 + 3^6) \times 2^1 + 6^5 + 5^3 \\
\mathbf{9366} := 3! \times (1! + 5! + 2! \times 6!) &= (3^6 + (1^3 + 5^2) \times 2^5) \times 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{9648} := (2! \times (6! + 4!) + 5!) \times 3! &= 2^2 \times 6^4 + 4^6 + 5^3 + 3^5 \\
&= 2^6 + 6^2 \times 4^4 + 5^3 + 3^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{10080} := 1! \times 2! \times 3! \times (6! + 5!) &= 1^6 \times 2^5 \times (3^3 + 6^2) \times 5^1 \\
\mathbf{10081} := 1! + 2! \times 3! \times (6! + 5!) &= 1^6 + 2^5 \times (3^3 + 6^2) \times 5^1 \\
\mathbf{10112} := 2! \times (1! + 7!) + 3! + 4! &= 2^7 \times (1^1 + 7^2 + 3^3) + 4^4 \\
\mathbf{10116} := (1! \times 3! + 7!) \times 2! + 4! &= (1^7 + 3^1) \times (7^4 + 2^3 \times 4^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{10136} := 2! \times (1! + 4! + 7!) + 3! &= 2^2 \times 1^4 \times (4^1 + 7^3 + 3^7) \\
&= 2^4 \times 1^2 + 4^1 \times (7^3 + 3^7)
\end{aligned}$$

$$\begin{aligned}
\mathbf{10140} := (1! \times 3! + 7! + 4!) \times 2! &= (1^2 + 3^7 + 7^3) \times 4^1 + 2^4 \\
&= (1^4 + 3^7 + 7^3 + 4^1) \times 2^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{10200} := (1! + 3!) \times 2! \times 6! + 5! &= (1^5 \times 3^1 \times 2^6 + 6^3) \times 5^2 \\
\mathbf{10206} := 2! \times 1! \times 7! + 5! + 3! &= (2^7 + (1^5 + 7^2) \times 5^1) \times 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{10224} := 1! \times 2! \times 7! + 3! \times 4! &= (1^2 \times 2^7 + 7^4 + 3^3) \times 4^1 \\
:= 1! \times 2! \times 7! + 4! \times 3! &= 1^7 \times 2^4 \times (7^1 + 4^3) \times 3^2 \\
:= 1! \times 4! + 5! + 2! \times 7! &= (1^7 \times 4^2) \times 5^4 + 2^5 \times 7^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{10225} := 1! + 2! \times 7! + 4! + 5! &= 1^7 + 2^5 \times 7^1 + 4^2 \times 5^4 \\
:= 1! + 2! \times 7! + 3! \times 4! &= 1^2 + (2^7 + 7^4 + 3^3) \times 4^1 \\
:= 1! + 2! \times 7! + 4! \times 3! &= 1^7 + 2^4 \times (7^1 + 4^3) \times 3^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{10326} := 1! \times 3! + 2! \times (5! + 7!) &= 1^7 + (3^3 + 2^5) \times 5^2 \times 7^1 \\
\mathbf{10332} := (1! \times 3! + 5! + 7!) \times 2! &= (1^7 + 3^5 + 5^3) \times 7^1 \times 2^2 \\
\mathbf{10344} := 1! \times 2! \times (7! + 5!) + 4! &= (1^7 + 2^1) \times 7^4 + 5^5 + 4^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{10368} := (3! \times 4! \times 1! + 7!) \times 2! &= (3^2 + 4^3 + 1^4 + 7^1) \times 2^7 \\
&= (3^3 + 4^1 + 1^4 + 7^2) \times 2^7 \\
&= 3^2 \times (4^3 + 1^7 + 7^1) \times 2^4 \\
&= 3^3 \times 4^2 \times (1^7 + 7^1 + 2^4) \\
&= 3^2 \times (4^4 \times 1^3 + 7^1 \times 2^7)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{10369} &:= 1! + (3! \times 4! + 7!) \times 2! && = 1^3 + 3^2 \times (4^4 + 7^1 \times 2^7) \\
&:= 1! + (4! + 7! + 5!) \times 2! && = 1^4 + 4^5 \times 7^1 + 5^2 \times 2^7
\end{aligned}$$

$$\begin{aligned}
\mathbf{10416} := (1! + 3!) \times (4! + 6!) \times 2! &= (1^6 \times 3^4 \times 4^2 + 6^1) \times 2^3 \\
&= 1^6 \times 3^1 \times 4^2 + 6^4 \times 2^3 \\
&= 1^6 \times 3^1 \times (4^2 \times 6^3 + 2^4)
\end{aligned}$$

$$\begin{aligned}
\mathbf{10800} &:= 1! \times 7! \times 2! + 5! \times 3! && = (1^7 + 7^1 \times (2^5 + 5^2)) \times 3^3 \\
\mathbf{10801} &:= 1! + (3! + 2!) \times 6! + 7! && = (1^7 + 3^3) \times 2^6 \times 6^1 + 7^2 \\
\mathbf{10806} &:= 1! \times 3! + 2! \times 7! + 6! && = 1^6 \times 3^7 \times 2^2 + 7^3 \times 6^1 \\
\mathbf{10807} &:= 1! + 3! + 2! \times 7! + 6! && = 1^6 + 3^7 \times 2^2 + 7^3 \times 6^1 \\
\mathbf{10812} &:= 2! \times (3! + 7!) \times 1! + 6! && = 2^2 \times 3^7 + (7^3 + 1^6) \times 6^1 \\
\mathbf{10848} &:= (1! + 5!) \times 4! \times 2! + 7! && = (1^7 + 5^1) \times (4^5 + 2^4 \times 7^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{12984} &:= 4! + 3! \times (1! + 2!) \times 6! && = 4^2 \times (3^6 + 1^1) + 2^3 + 6^4 \\
&:= 4! + 6! \times (1! + 2!) \times 3! && = ((4^6 + 6^3) \times 1^2 + 2^4) \times 3^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{13104} &:= 3! \times ((1! + 2!) \times 6! + 4!) && = (3^3 \times 1^4 + 2^6) \times 6^2 \times 4^1 \\
\mathbf{13320} &:= (1! + 2!) \times (5! + 3! \times 6!) && = (1^6 \times 2^1 + 5^3 + 3^5) \times 6^2 \\
\mathbf{13392} &:= (1! + 2!) \times (4! + 6!) \times 3! && = ((1^6 + 2^1) \times 4^3 + 6^4) \times 3^2 \\
\mathbf{13680} &:= ((2! + 1!) \times 6! + 5!) \times 3! && = 2^6 + (1^1 + 6^2) \times (5^3 + 3^5) \\
\mathbf{13681} &:= 1! + 7! + 6! \times 3! \times 2! && = (1^7 + 7^1 \times 6^3) \times 3^2 + 2^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{14400} &:= 1! \times 2! \times 7! + 3! \times 6! && = 1^7 \times 2^6 \times (7^1 \times 3^3 + 6^2) \\
&:= (4! \times 5! + 3! \times 6!) \times 2! && = 4^6 + (5^2 + 3^4 + 6^3) \times 2^5
\end{aligned}$$

$$\mathbf{14401} := 1! + 2! \times 7! + 3! \times 6! \qquad = 1^7 + 2^6 \times (7^1 \times 3^3 + 6^2)$$

$$\begin{aligned}
\mathbf{15552} &:= (1! + 2!) \times (4! + 5! + 7!) && = (1^7 \times 2^5 + 4^4) \times (5^1 + 7^2) \\
&:= (2! + 1!) \times (7! + 4! \times 3!) && = 2^3 \times (1^7 + 7^1 + 4^2) \times 3^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{15840} &:= (1! \times 7! + 5! \times 4!) \times 2! && = (1^7 + 7^2 + 5^1) \times (4^4 + 2^5) \\
\mathbf{15888} &:= 2! \times ((1! + 5!) \times 4! + 7!) && = (2^2 + 1^7) \times 5^5 + 4^4 + 7^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{17289} &:= 1! + 4! \times 6! + 2! + 3! && = (1^6 + 4^1) \times 6^3 \times 2^4 + 3^2 \\
&:= 1! + 6! \times 4! + 2! + 3! && = (1^3 + 6^1 \times (4^4 + 2^6)) \times 3^2
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{17312} &:= 2! + 4! \times (6! + 1!) + 3! && = (2^4 + 4^6 + 6^3) \times (1^2 + 3^1)\\
\mathbf{17334} &:= 1! \times 4! \times (2! + 6!) + 3! && = (1^3 + 4^4 + 2^6) \times 6^1 \times 3^2\\
\mathbf{17408} &:= 2! + 4! \times 6! + 3! + 5! && = 2^6 + 4^2 \times (6^3 + 3^5 + 5^4)\\
\mathbf{17436} &:= (2! + 4! \times (1! + 5!)) \times 3! && = 2^4 + (4^3 + 1^1) \times (5^2 + 3^5)
\end{aligned}$$

$$\begin{aligned}
\mathbf{17472} &:= (1! \times 2! + 6! + 3!) \times 4! && = 1^3 \times 2^2 \times 6^4 + 3^1 \times 4^6\\
&:= (2! + (1! + 5!) \times 3!) \times 4! && = (2^5 \times (1^2 + 5^1) + 3^4) \times 4^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{17473} &:= 1! + (2! + 6! + 3!) \times 4! && = 1^3 + 2^2 \times 6^4 + 3^1 \times 4^6\\
\mathbf{17568} &:= 1! \times 3! \times 4! \times (5! + 2!) && = (1^2 + 3^5 \times 4^1 + 5^3) \times 2^4\\
\mathbf{17712} &:= (3! \times (2! + 1!) + 6!) \times 4! && = 3^3 \times 2^4 \times (1^6 + 6^2 + 4^1)\\
\mathbf{18048} &:= (3! \times 5! + 2!) \times 4! + 6! && = 3^5 + 5^3 + 2^2 \times 4^6 + 6^4\\
\mathbf{18050} &:= (1! + 4!) \times (2! + 3! \times 5!) && = (1^1 + 4^5) \times (2^3 + 3^2) + 5^4\\
\mathbf{18152} &:= (1! + 4!) \times (3! + 6!) + 2! && = (1^6 + 4^1 + 3^2) \times 6^4 + 2^3\\
\mathbf{18240} &:= ((4! + 1!) \times 3! + 2!) \times 5! && = 4^3 \times (1^1 + 3^5 + 2^4 + 5^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{18720} &:= (2! + 4!) \times 1! \times 5! \times 3! && = 2^4 \times (4^1 + 1^5 + 5^3) \times 3^2\\
& && = 2^5 \times (4^1 \times (1^2 + 5^3) + 3^4)
\end{aligned}$$

$$\mathbf{18876} := (1! + 5!) \times (2! + 4!) \times 3! = 1^3 + 5^2 \times (2^1 \times 4^4 + 3^5)$$

$$\begin{aligned}
\mathbf{19440} &:= 3! \times (2! + 4! + 1!) \times 5! && = 3^4 \times (2^5 + 4^2) \times 1^3 \times 5^1\\
& && = 3^4 \times 2^3 \times (4^1 + 1^5 + 5^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{20160} &:= 2! \times (6! \times (3! + 1!) + 7!) && = (2^6 + 6^3) \times 3^2 \times (1^7 + 7^1)\\
\mathbf{20190} &:= (1! + 5! + 6!) \times 4! + 3! && = 1^4 + 5^3 + 6^5 + 4^6 \times 3^1\\
\mathbf{20208} &:= (1! \times 2! + 5! + 6!) \times 4! && = 1^6 \times 2^5 \times (5^4 + 6^1) + 4^2\\
\mathbf{20209} &:= 1! + (2! + 5! + 6!) \times 4! && = 1^6 + 2^5 \times (5^4 + 6^1) + 4^2\\
\mathbf{20400} &:= (4! \times (1! + 3!) + 2!) \times 5! && = 4^5 + 1^1 + (3^3 + 2^2) \times 5^4\\
\mathbf{20496} &:= (1! + 3!) \times (2! + 5!) \times 4! && = (1^4 + 3^5) \times (2^2 \times 5^1 + 4^3)
\end{aligned}$$

$$\begin{aligned}
\mathbf{21840} &:= (1! \times 4! + 2!) \times (5! + 6!) && = 1^5 \times 4^2 \times (2^6 + 5^1 + 6^4)\\
&:= (3! + 4!) \times 6! + 2! \times 5! && = 3^3 + (4^4 + 6^2) \times 2^6 + 5^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{21841} &:= 1! + (4! + 2!) \times (5! + 6!) = 1^5 + 4^2 \times (2^6 + 5^1 + 6^4)\\
\mathbf{21866} &:= (1! + 5! + 6!) \times (2! + 4!) = 1^2 + 5^6 + 6^1 \times (2^4 + 4^5)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{21888} := 3! \times (6! + (5! + 2!) \times 4!) = (3^3 + 6^4 + 5^5) \times 2^2 + 4^6$$
$$\mathbf{22320} := 1! \times 4! \times 3! \times 5! + 7! = 1^7 \times 4^4 + (3^3 + 5^5) \times 7^1$$
$$\mathbf{22321} := 1! + 4! \times 3! \times 5! + 7! = 1^7 + 4^4 + (3^3 + 5^5) \times 7^1$$

$$\mathbf{23040} := (1! \times 2! + 3!) \times 4! \times 5! = (1^5 + 2^3 + 3^2) \times 4^4 \times 5^1$$
$$:= (2! + 4! \times 1! + 3!) \times 6! = 2^6 \times (4^1 \times 1^3 \times 3^4 + 6^2)$$
$$:= ((2! + 4!) \times 5! + 6!) \times 3! = 2^2 \times (4^6 + 5^3 + 6^4 + 3^5)$$
$$:= 1! \times 6! \times (2! + 3! + 4!) = (1^6 \times 6^2 + 2^1 \times 3^3) \times 4^4$$
$$:= 1! \times 6! \times (3! + 4! + 2!) = (1^3 \times 6^2 + 3^4 \times 4^1) \times 2^6$$

$$\mathbf{23041} := (2! + 4! + 3!) \times 6! + 1! = 2^6 \times (4^1 \times 3^4 + 6^2) + 1^3$$
$$:= (4! + 2! + 3!) \times 6! + 1! = 4^4 \times (2^1 \times 3^3 + 6^2) + 1^6$$

$$\mathbf{23232} := (1! + 5!) \times 4! \times (3! + 2!) = (1^2 + 5^1 \times (4^3 + 3^4)) \times 2^5$$

$$\mathbf{23760} := (2! + 3! + 1! + 4!) \times 6! = (2^3 \times (3^4 + 1^6) + 4^1) \times 6^2$$
$$= 2^6 \times 3^3 + (1^1 + 4^2) \times 6^4$$
$$= 2^1 \times (3^6 \times 1^4 \times 4^2 + 6^3)$$

$$\mathbf{25200} := (5! + 6!) \times 1! \times 4! + 7! = 5^6 + 6^5 + (1^7 + 4^4) \times 7^1$$
$$:= (2! + 3! + 1!) \times 4! \times 5! = 2^5 \times 3^3 \times (1^4 + 4^1 + 5^2)$$
$$:= (1! \times 2! \times 3! + 4!) \times 6! = 1^6 \times 2^3 \times 3^4 \times (4^1 + 6^2)$$
$$= 1^3 \times 2^1 \times (3^6 \times 4^2 + 6^4)$$

$$\mathbf{25921} := 1! + (2! \times 3! + 4!) \times 6! = 1^3 + 2^1 \times (3^6 \times 4^2 + 6^4)$$
$$= 1^6 + 2^3 \times 3^4 \times (4^1 + 6^2)$$

$$\mathbf{25956} := (2! \times 3! + 4!) \times (1! + 6!) = 2^6 \times 3^4 \times (4^1 + 1^3) + 6^2$$

$$\mathbf{30240} := 6! \times ((2! + 1!) \times 3! + 4!) = (6^1 + 2^6) \times 1^4 \times 3^3 \times 4^2$$
$$:= 6! \times (3! \times (2! + 1!) + 4!) = (6^3 + 3^6) \times 2^1 \times 1^4 \times 4^2$$

$$\mathbf{30528} := (1! \times 7! + 2! \times 4!) \times 3! = 1^7 + 7^3 \times (2^2 + 4^1 + 3^4)$$
$$\mathbf{34560} := 1! \times 2! \times 3! \times 4! \times 5! = 1^5 \times 2^4 \times 3^3 \times 4^2 \times 5^1$$
$$\mathbf{34561} := 1! + 2! \times 3! \times 4! \times 5! = 1^5 + 2^4 \times 3^3 \times 4^2 \times 5^1$$

$$\mathbf{34562} := (1! + 3! \times 5! \times 4!) \times 2! = (1^5 + 3^2 + 5^3) \times 4^4 + 2^1$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$:= (1! + 4! \times 5! \times 3!) \times 2! \quad = (1^4 + 4^2 + 5^5) \times (3^1 + 2^3)$$

$$\textbf{34566} := 3! + 2! \times 1! \times 4! \times 6! \quad = 3^3 \times (2^2 + 1^6) \times 4^4 + 6^1$$

$$\begin{aligned}
\textbf{34572} &:= (1! \times 2! + 6! + 7!) \times 3! && = (1^6 + 2^7) \times (6^3 + 7^2 + 3^1) \\
&:= 2! \times (4! \times 5! + 1!) \times 3! && = (2^1 + 4^4) \times (5^3 \times 1^5 + 3^2)
\end{aligned}$$

$$\begin{aligned}
\textbf{34590} &:= (1! + 2! \times 6!) \times 4! + 3! && = (1^6 + 2^2) \times (6^1 + 4^4 \times 3^3) \\
\textbf{34848} &:= (1! + 5!) \times 3! \times 4! \times 2! && = (1^2 + 5^1 \times 3^3) \times 4^4 + 2^5 \\
\textbf{35616} &:= (1! + 3!) \times (7! + 2! \times 4!) && = (1^2 \times 3^1 + 7^4) \times 2^3 + 4^7 \\
\textbf{36000} &:= 2! \times 3! \times (1! + 4!) \times 5! && = (2^5 + (3^3 + 1^2) \times 4^4) \times 5^1 \\
\textbf{37440} &:= (2! \times 3! + 1!) \times 4! \times 5! && = (2^5 \times 3^2) \times (1^4 + 4^1 + 5^3)
\end{aligned}$$

$$\begin{aligned}
\textbf{38880} &:= (1! \times 6! \times 2! + 7!) \times 3! && = 1^6 \times 6^3 \times (2^7 + 7^2 + 3^1) \\
&:= (1! \times 4! \times 2! + 3!) \times 6! && = (1^3 \times 4^2 + 2^6) \times 3^4 \times 6^1 \\
& && = (1^6 \times 4^1 + 2^4) \times 3^2 \times 6^3
\end{aligned}$$

$$\begin{aligned}
\textbf{38881} &:= 1! + (2! \times 4! + 3!) \times 6! && = 1^3 + (2^6 + 4^2) \times 3^4 \times 6^1 \\
& && = 1^6 + (2^4 + 4^1) \times 3^2 \times 6^3 \\
&:= 1! + 3! \times (7! + 2! \times 6!) && = 1^6 + (3^1 + 7^2 + 2^7) \times 6^3
\end{aligned}$$

$$\begin{aligned}
\textbf{40320} &:= (1! + 3!) \times 2! \times 4! \times 5! && = (1^1 + 3^2) \times 2^5 + 4^3 \times 5^4 \\
& && = (1^2 + 3^3) \times (2^5 + 4^4) \times 5^1 \\
&:= (3! + (1! + 4!) \times 2!) \times 6! && = 3^2 \times 1^1 \times 4^6 + 2^4 \times 6^3 \\
& && = 3^2 \times 1^4 \times 4^3 \times (2^6 + 6^1)
\end{aligned}$$

$$\textbf{40448} := 1! \times 2! + 3! + 5! + 8! \quad = (1^5 + 2^8 + 3^1 \times 5^3) \times 8^2$$

$$\begin{aligned}
\textbf{40512} &:= (1! + 2!) \times 4! + 5! + 8! && = 1^5 \times 2^8 + (4^1 + 5^4) \times 8^2 \\
&:= (2! \times 1! + 3!) \times (7! + 4!) && = (2^1 \times 1^4 + 3^7 + 7^3) \times 4^2 \\
& && = (2^7 \times 1^3 + 3^1 + 7^4) \times 4^2 \\
& && = 2^4 \times (1^1 + 3^7 + 7^3) + 4^2
\end{aligned}$$

$$\begin{aligned}
\textbf{40513} &:= 1! + (2! + 3!) \times (7! + 4!) && = 1^3 + (2^7 + 3^1 + 7^4) \times 4^2 \\
& && = 1^4 + (2^1 + 3^7 + 7^3) \times 4^2
\end{aligned}$$

$$\textbf{40584} := 1! \times 4! + 5! \times 2! + 8! \quad = (1^8 + 4^4 + 5^5) \times (2^2 + 8^1)$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{40752} &:= 4! \times 3! \times (2! + 1!) + 8! && = 4^2 \times (3^3 + 2^8) \times (1^4 + 8^1) \\
\mathbf{41072} &:= 2! + 3! + 6! + 8! + 4! && = 2^8 + 3^3 \times (6^4 + 8^2) + 4^6 \\
\mathbf{41280} &:= 1! \times 5! \times (3! + 2!) + 8! && = (1^5 + 5^3 + 3^1) \times (2^8 + 8^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{42000} &:= (1! + 4!) \times (5! + 6!) \times 2! && = 1^6 \times 4^5 \times (5^1 + 6^2) + 2^4 \\
&:= 5! \times 2! \times (1! + 3!) + 8! && = 5^3 \times (2^5 + 1^8 + 3^2) \times 8^1 \\
& && = 5^3 \times (2^8 + (1^5 + 3^2) \times 8^1)
\end{aligned}$$

$$\mathbf{42486} := 3! + 8! + (1! + 2!) \times 6! \quad = (3^8 + (8^2 + 1^6) \times 2^3) \times 6^1$$

$$\begin{aligned}
\mathbf{43200} &:= (1! \times 3! + 4!) \times 2! \times 6! && = (1^6 + 3^2) \times (4^1 + 2^4) \times 6^3 \\
&:= (1! \times 3! + 4!) \times 6! \times 2! && = 1^2 \times 3^3 \times (4^4 \times 6^1 + 2^6) \\
&:= 3! \times (7! + (1! + 2!) \times 6!) && = (3^6 + 7^3 \times 1^1 + 2^7) \times 6^2 \\
& && = (3^2 \times (7^1 + 1^6) + 2^7) \times 6^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{43201} &:= 1! + 2! \times 6! \times (4! + 3!) && = 1^2 + (2^6 + 6^1 \times 4^4) \times 3^3 \\
\mathbf{44688} &:= 3! \times 6! + 8! + 2! \times 4! && = (3^6 + 6^4 + 8^3 + 2^8) \times 4^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{46080} &:= 2! \times (7! + (1! + 4!) \times 6!) && = (2^7 \times (7^1 + 1^6) + 4^4) \times 6^2 \\
&:= 1! \times 5! \times 2! \times 4! + 8! && = (1^8 + 5^2) \times 2^1 \times 4^4 + 8^5 \\
& && = (1^1 + 5^2) \times (2^8 + 4^4) + 8^5 \\
& && = (1^8 \times 5^1 + 2^2) \times (4^5 + 8^4)
\end{aligned}$$

$$\begin{aligned}
\mathbf{46081} &:= 1! + 5! \times 2! \times 4! + 8! && = 1^8 + (5^1 + 2^2) \times (4^5 + 8^4) \\
&:= 1! + 6! \times (2! + 3!) + 8! && = 1^6 + 6^2 \times (2^8 \times 3^1 + 8^3)
\end{aligned}$$

$$\begin{aligned}
\mathbf{46800} &:= 6! \times (2! + 1! + 3!) + 8! && = 6^6 + (2^3 + 1^8 + 3^2) \times 8^1 \\
& && = 6^6 + 2^2 \times (1^8 + 3^3 + 8^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{48960} &:= 1! \times 8! + 2! \times 3! \times 6! && = (1^2 \times 8^3 + 2^8) \times 3^1 + 6^6 \\
& && = 1^8 \times 8^1 \times 2^3 \times (3^6 + 6^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{48961} &:= 1! + 8! + 2! \times 3! \times 6! && = 1^2 + (8^3 + 2^8) \times 3^1 + 6^6 \\
& && = 1^8 + 8^1 \times 2^3 \times (3^6 + 6^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{50407} &:= 1! + 7! \times 2! + 3! + 8! && = 1^2 \times 7^1 \times (2^7 + 3^8 + 8^3) \\
\mathbf{50408} &:= (1! + 7!) \times 2! + 3! + 8! && = 1^2 + 7^1 \times (2^7 + 3^8 + 8^3)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\mathbf{50414} := (7! + 1! + 3!) \times 2! + 8! \quad = 7^1 \times (1^2 + 3^8 + 2^7 + 8^3)$$

$$\mathbf{51840} := (1! + 2!) \times 5! \times 3! \times 4! \quad = 1^5 \times 2^3 \times 5^1 \times 3^4 \times 4^2$$
$$= (1^5 + 2^2 + 5^1) \times 3^4 \times 4^3$$

$$\mathbf{51846} := 3! + 4! \times (2! + 1!) \times 6! \quad = (3^3 \times (4^4 + 2^6) + 1^2) \times 6^1$$

$$\mathbf{56160} := ((1! + 2!) \times 4! + 3!) \times 6! = (1^6 + 2^4 \times 4^2 + 3^1) \times 6^3$$
$$:= ((2! + 1!) \times 4! + 3!) \times 6! = 2^4 \times (1^6 + 4^3) \times 3^2 \times 6^1$$

$$\mathbf{60720} := (1! \times 5! + 3! \times 7!) \times 2! \quad = (1^5 + 5^1) \times (3^7 + 7^3) \times 2^2$$

$$\mathbf{64800} := (1! + 2!) \times (4! + 3!) \times 6! = (1^2 \times 2^3) \times 4^1 \times (3^6 + 6^4)$$
$$= 1^3 \times 2^1 \times 4^2 \times (3^6 + 6^4)$$
$$:= 3! \times 7! + 2! \times 4! \times 6! \quad = (3^7 + 7^2) \times 2^3 + 4^4 + 6^6$$

$$\mathbf{76320} := 6! \times 2! \times (1! + 4!) + 8! \quad = 6^2 \times (2^6 + (1^8 + 4^4) \times 8^1)$$
$$\mathbf{80640} := (1! + 3!) \times (7! + 6!) \times 2! = (1^7 + 3^3 + 7^1) \times 6^2 \times 2^6$$
$$\mathbf{80928} := (1! \times 8! + 4! + 5!) \times 2! \quad = (1^8 + 8^1) \times (4^4 + 5^2) \times 2^5$$
$$\mathbf{83520} := (1! \times 2!) \times 8! + 4! \times 5! \quad = ((1^5 + 2^8) \times 8^2 + 4^4) \times 5^1$$
$$\mathbf{83521} := 1! + 2! \times 8! + 4! \times 5! \quad = 1^5 + (2^8 + 8^2) \times (4^4 + 5^1)$$
$$\mathbf{88572} := (1! \times 3! + 6!) \times (5! + 2!) = (1^1 + 3^3) \times (6^2 + 5^5) + 2^6$$
$$\mathbf{89298} := (2! + 5! + 1!) \times (3! + 6!) = (2^6 + 5^5) \times (1^2 + 3^3) + 6^1$$
$$\mathbf{91442} := (1! + 3! + 5!) \times 6! + 2! \quad = (1^2 + 3^6) \times 5^3 + 6^1 \times 2^5$$
$$\mathbf{92160} := (1! + 2!) \times 4! \times 6! + 8! \quad = (1^8 \times 2^6 + 4^4) \times 6^2 \times 8^1$$
$$\mathbf{92880} := (3! + 6! + 4! \times 2!) \times 5! \quad = 3^2 \times (6^4 + 4^5 + 2^6 \times 5^3)$$

$$\mathbf{95040} := 3! \times ((2! + 1!) \times 7! + 6!) = 3^3 \times 2^6 \times 1^7 \times (7^2 + 6^1)$$
$$= 3^6 \times 2^7 + (1^2 + 7^1) \times 6^3$$

$$\mathbf{103682} := 1! \times 3! \times 4! \times 6! + 2! \quad = (1^2 + 3^4 \times 4^3 + 6^6) \times 2^1$$
$$\mathbf{103683} := 1! + 2! + (4! \times 6!) \times 3! \quad = (1^3 \times 2^6 + 4^2) \times 6^4 + 3^1$$
$$\mathbf{103688} := (1! + 6! \times 4!) \times 3! + 2! \quad = (1^1 + 6^4 + 4^2 \times 3^6) \times 2^3$$
$$\mathbf{104544} := (1! + 5!) \times (3! \times 4! + 6!) = (1^6 + 5^3) \times 3^1 \times 4^4 + 6^5$$
$$\mathbf{105120} := (1! \times 3! \times 4! + 2!) \times 6! \quad = (1^4 + 3^6) \times (4^2 + 2^3) \times 6^1$$

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http://doi.org/10.5281/zenodo.2573569

$$\textbf{105840} := (1! + 2! + 4! \times 3!) \times 6! = (1^1 \times 2^6 + 4^2) \times (3^3 + 6^4)$$
$$= (1^4 + 2^3) \times 4^2 \times (3^6 + 6^1)$$

$$\textbf{112320} := (2! \times 1! + 4!) \times 3! \times 6! = 2^4 \times (1^6 + 4^3) \times 3^1 \times 6^2$$
$$= (2^6 + 1^1) \times (4^2 \times 3^3 + 6^4)$$

$$\textbf{116640} := (1! + 2! + 4!) \times 3! \times 6! = (1^1 + 2^3) \times (4^2 \times 3^6 + 6^4)$$
$$:= (1! + 2! + 4!) \times 6! \times 3! = (1^3 \times 2^4 + 4^1 \times 6^2) \times 3^6$$
$$:= (2! + 1! + 4!) \times 3! \times 6! = 2^3 \times (1^6 + 4^1) \times 3^4 \times 6^2$$
$$= (2^3 + 1^1) \times (4^2 \times 3^6 + 6^4)$$

$$\textbf{121392} := (3! \times (1! + 2!) + 7!) \times 4! = 3^1 \times 1^3 \times (2^7 + 7^4) \times 4^2$$
$$:= (2! + 1!) \times (8! + 3! \times 4!) = (2^1 \times (1^4 + 8^3) + 3^8) \times 4^2$$

$$\textbf{122040} := (1! + 2!) \times (5! + 8!) + 6! = (1^6 + 2^8 + 5^5 + 8^1) \times 6^2$$
$$\textbf{122401} := 1! + 6! \times 2! + 4! \times 7! = 1^4 \times 6^2 \times (2^7 + 4^1) + 7^6$$
$$\textbf{122402} := (1! + 6!) \times 2! + 4! \times 7! = 1^4 + 6^2 \times (2^7 + 4^1) + 7^6$$
$$\textbf{123840} := 4! \times 5! + (1! + 2!) \times 8! = (4^1 + 5^2 + 1^8) \times (2^5 + 8^4)$$
$$\textbf{131040} := (1! \times 3! + 5!) \times 6! + 8! = 1^8 + 3^3 \times 5^5 + 6^6 + 8^1$$

$$\textbf{131072} := (2! + 4!) \times (1! + 7!) + 3! = 2^7 \times 4^3 \times 1^4 \times (7^1 + 3^2)$$
$$= 2^3 \times 4^4 \times (1^7 + 7^1 \times 3^2)$$

$$\textbf{131222} := (1! + 7! + 3!) \times (2! + 4!) = (1^4 + 7^2) \times 3^1 + 2^3 \times 4^7$$
$$\textbf{135360} := (2! + 4!) \times 7! + 3! \times 6! = (2^2 + 4^7) + 7^6 + 3^3 + 6^4$$

$$\textbf{138240} := (1! \times 3! + 2!) \times 4! \times 6! = (1^6 + 3^2) \times 2^4 \times 4^1 \times 6^3$$
$$:= (4! \times (1! + 2!) + 5!) \times 6! = 4^4 \times (1^5 + 2^6 + 5^2) \times 6^1$$

$$\textbf{138528} := (2! \times 3! + 7! + 6!) \times 4! = 2^7 \times (3^6 + 7^3) + 6^4 + 4^2$$

$$\textbf{141120} := 4! \times (3! + 1!) \times (5! + 6!) = 4^4 \times (3^5 + 1^1 + 5^3) + 6^6$$
$$:= 4! \times (3! + 1!) \times (6! + 5!) = 4^5 + 3^1 \times (1^4 + 6^6) + 5^3$$

$$\textbf{155520} := (1! + 3! + 2!) \times 4! \times 6! = (1^6 + 3^2) \times (2^3 + 4^1) \times 6^4$$
$$:= (1! + 2! + 3!) \times 4! \times 6! = (1^6 + 2^2) \times 3^4 \times 4^3 \times 6^1$$
$$= (1^2 + 2^1) \times (3^4 \times 4^3 + 6^6)$$

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http://doi.org/10.5281/zenodo.2573569

$$\mathbf{161280} := (2! + 3!) \times 4! \times (5! + 6!) = (2^4 + 3^5 + 4^6 + 5^3) \times 6^2$$
$$\mathbf{172800} := ((2! + 1!) \times 6! + 7!) \times 4! = 2^7 \times (1^6 + 6^4 + 7^2 + 4^1)$$
$$\mathbf{174252} := ((1! + 5!) \times 6! + 3!) \times 2! = 1^5 + (5^6 + 6^3) \times (3^2 + 2^1)$$
$$\mathbf{175692} := (1! + 5!) \times (6! + 3!) \times 2! = 1^5 + (5^2 + 6^3) \times 3^6 + 2^1$$
$$\mathbf{180048} := (1! + 5!) \times (6! + 4!) \times 2! = (1^6 + (5^4 \times 6^1)) \times (4^2 + 2^5)$$

$$\begin{aligned}\mathbf{181440} := (1! \times 2! \times 3! + 4!) \times 7! &= (1^7 + 2^2) \times 3^4 \times 4^3 \times 7^1 \\ := (1! \times 5! + 3!) \times 6! \times 2! &= (1^2 + 5^1) \times (3^6 + 6^3) \times 2^5\end{aligned}$$

$$\mathbf{190086} := 3! + (5! \times 2! + 4!) \times 6! = 3^2 + 5^3 + 2^4 \times (4^6 + 6^5)$$

$$\begin{aligned}\mathbf{207360} := 1! \times 4! \times 2! \times 6! \times 3! &= (1^2 \times 4^4 + 2^6) \times 6^3 \times 3^1 \\ := 1! \times 2! \times 4! \times 6! \times 3! &= (1^2 \times 2^6 + 4^4) \times 6^3 \times 3^1 \\ &= (1^6 + 2^2) \times 4^4 \times 6^1 \times 3^3 \\ &= 1^3 \times 2^6 \times (4^1 + 6^2) \times 3^4\end{aligned}$$

$$\begin{aligned}\mathbf{207361} := 1! + 2! \times 4! \times 6! \times 3! &= 1^2 + (2^6 + 4^4) \times 6^3 \times 3^1 \\ := 1! + 2! \times 3! \times 4! \times 6! &= 1^1 + 2^2 \times (3^4 \times 4^3 + 6^6) \\ &= 1^3 + 2^6 \times 3^4 \times (4^1 + 6^2)\end{aligned}$$

$$\mathbf{207480} := 2! \times 3! \times 6! \times 4! + 5! = 2^4 + 3^6 \times 6^3 + 4^2 \times 5^5$$
$$\mathbf{208800} := 2! \times (1! + 5! + 4!) \times 6! = (2^6 + 1^1 + 5^2) \times (4^5 + 6^4)$$

$$\begin{aligned}\mathbf{224640} := (2! \times 3! + 1!) \times 4! \times 6! &= 2^6 \times 3^2 \times (1^4 + 4^3) \times 6^1 \\ &= 2^2 \times (3^1 + 1^6 + 4^4) \times 6^3\end{aligned}$$

$$\mathbf{241920} := (1! + 3!) \times 6! \times 2! \times 4! = (1^1 \times 3^6 + 6^3) \times 2^4 \times 4^2$$
$$\mathbf{247680} := 6! \times (4! + 5!) \times 2! + 8! = 6^6 + 4^5 + 5^4 \times (2^8 + 8^2)$$
$$\mathbf{259206} := 3! + 5! \times (2! + 1!) \times 6! = (3^3 \times 5^2 \times 2^6 + 1^5) \times 6^1$$
$$\mathbf{263520} := ((1! + 2!) \times 5! + 3!) \times 6! = (1^6 + 2^2 + 5^1 \times 3^5) \times 6^3$$
$$\mathbf{283680} := 6! \times 2! + (1! + 3!) \times 8! = 6^2 \times (2^8 \times 1^3 + 3^6) \times 8^1$$
$$\mathbf{307440} := (1! + (3! + 4!) \times 2!) \times 7! = (1^2 + 3^3) \times 4^1 + 2^7 \times 7^4$$

$$\begin{aligned}\mathbf{311040} := (3! + 2! \times 4!) \times (7! + 6!) &= 3^4 \times (2^7 + 4^3 \times 7^2) + 6^6 \\ := (2! + 1!) \times 4! \times 3! \times 6! &= (2^6 \times 1^1 + 4^4) \times 3^3 \times 6^2 \\ &= (2^6 \times 1^3 + 4^2) \times 3^1 \times 6^4\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 2^6 \times (1^4 + 4^1) \times 3^3 \times 6^2$$

$$\mathbf{349920} := ((1! + 4!) \times 6! + 8!) \times 3! = (1^8 \times 4^4 + 6^3 + 8^1) \times 3^6$$
$$= (1^8 \times 4^6 + 6^3 + 8^1) \times 3^4$$

$$\mathbf{350640} := 3! \times (4! \times 6! + 8!) + 7! = 3^6 + 4^8 + 6^7 + 8^4 + 7^3$$
$$\mathbf{363008} := 2! \times 1! + 3! + 5! + 9! = 2^9 \times (1^5 + 3^3) \times 5^2 + 9^1$$
$$\mathbf{363744} := (1! \times 4! + 5!) \times 3! + 9! = 1^9 \times 4^1 \times (5^5 \times 3^3 + 9^4)$$
$$\mathbf{363745} := 1! + (4! + 5!) \times 3! + 9! = 1^9 + 4^1 \times (5^5 \times 3^3 + 9^4)$$
$$\mathbf{364446} := 2! \times 6! + 3! + 5! + 9! = 2^9 \times 6^3 + 3^6 + 5^5 \times 9^2$$
$$\mathbf{367920} := (1! + 3! + 2!) \times 8! + 7! = ((1^7 + 3^8) \times 2^3 + 8^2) \times 7^1$$
$$\mathbf{367956} := 2! \times 3! + 4! + 9! + 7! = 2^7 + 3^9 + (4^3 + 9^2) \times 7^4$$
$$\mathbf{466560} := 1! \times 3! \times 4! \times 6! + 9! = (1^9 \times 3^4 \times 4^3 + 6^6) \times 9^1$$

$$\mathbf{466561} := 3! \times 4! \times 6! + 9! + 1! = (3^4 \times 4^3 + 6^6) \times 9^1 + 1^9$$
$$:= 1! + 3! \times 4! \times 6! + 9! = 1^9 + (3^4 \times 4^3 + 6^6) \times 9^1$$

$$\mathbf{466566} := (1! + 6! \times 4!) \times 3! + 9! = 1^9 \times 6^1 + 4^3 \times (3^6 + 9^4)$$
$$\mathbf{492480} := (1! \times 8! + 6!) \times 3! \times 2! = (1^8 + 8^3) \times (6^1 + 3^2) \times 2^6$$
$$\mathbf{518403} := 1! + 2! + 5! \times 6! \times 3! = (1^6 + 2^5 \times 5^2 \times 6^3) \times 3^1$$
$$\mathbf{529968} := (2! + 5!) \times (3! \times 6! + 4!) = 2^5 + (5^6 + 3^4 \times 6^3) \times 4^2$$
$$\mathbf{540000} := (4! + 3! \times (1! + 5!)) \times 6! = (4^4 + 3^5 + 1^6) \times 5^1 \times 6^3$$
$$\mathbf{604928} := (1! + 7!) \times 5! + 3! + 2! = (1^5 + 7^1 \times 5^2 \times 3^3) \times 2^7$$
$$\mathbf{626400} := (1! + 4! + 5!) \times 3! \times 6! = (1^6 + 4^5 + 5^4 \times 3^1) \times 6^3$$
$$\mathbf{691200} := (1! \times 3! + 2!) \times 5! \times 6! = (1^5 + 3^2) \times 2^6 \times 5^1 \times 6^3$$
$$\mathbf{691200} := (1! \times 3! + 2!) \times 5! \times 6! = (1^6 + 3^1) \times 2^5 \times 5^2 \times 6^3$$
$$\mathbf{725760} := (1! + 2! + 3!) \times 8! + 9! = 1^9 \times 2^8 \times (3^3 + 8^1) \times 9^2$$
$$\mathbf{777600} := 5! \times (2! + 3! + 1!) \times 6! = ((5^2 + 2^3) \times 3^1 + 1^6) \times 6^5$$
$$\mathbf{846720} := 1! \times 4! \times 7! + 9! \times 2! = (1^9 + 4^1 + 7^2 + 9^4) \times 2^7$$
$$\mathbf{887040} := 8! \times (1! + 2! \times 3!) + 9! = 8^2 \times ((1^8 + 2^9) \times 3^3 + 9^1)$$
$$\mathbf{967680} := (1! \times 3! + 2!) \times 7! \times 4! = (1^2 + 3^3) \times (2^7 + 7^1) \times 4^4$$

$$\mathbf{1036800} := 1! \times 2! \times 3! \times 5! \times 6! = 1^5 \times 2^6 \times 3^1 \times 5^2 \times 6^3$$
$$\mathbf{1036801} := 1! + 2! \times 3! \times 5! \times 6! = 1^5 + 2^6 \times 3^1 \times 5^2 \times 6^3$$
$$\mathbf{1179360} := (1! + 2!) \times (7! \times 3! + 9!) = (1^3 + 2^9 + 7^1) \times (3^7 + 9^2)$$
$$\mathbf{1330560} := (1! \times 4! + 2! \times 5!) \times 7! = (1^5 + 4^2) \times (2^1 + 5^7) + 7^4$$
$$\mathbf{1468800} := 4! \times (2! \times 7! \times 3! + 6!) = (4^6 + 2^3 \times (7^4 + 3^7)) \times 6^2$$

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http://doi.org/10.5281/zenodo.2573569

$$\mathbf{1555200} := (1!+2!)\times 3!\times 5!\times 6! = (1^2+2^6+3^3\times 5^1)\times 6^5$$
$$\mathbf{1942560} := 2!\times((5!+8!)\times 4!+6!) = 2^5\times(5^2+8^4+4^6)+6^8$$
$$\mathbf{2073606} := 1!\times 5!\times 4!\times 6!+3! = 1^3+5^1+4^5\times(6^4+3^6)$$
$$\mathbf{2073726} := 3!+(6!\times 4!+1!)\times 5! = (3^6+6^4)\times 4^5+1^1+5^3$$
$$\mathbf{2080080} := (4!\times(2!+6!)+3!)\times 5! = (4^3+2^4)\times(6^5+3^6\times 5^2)$$
$$\mathbf{2177406} := (1!+4!\times 6!)\times(3!+5!) = 1^1+4^4\times(6^5+3^6)+5^3$$
$$\mathbf{2764800} := (3!+4!+2!)\times 6!\times 5! = (3^3\times 4^5+2^6\times 6^4)\times 5^2$$
$$\mathbf{3631080} := 5!+(1!+2!+7!)\times 6! = (5^1+1^6)\times(2^7+7^5\times 6^2)$$
$$\mathbf{3732480} := (1!\times 7!+3!\times 4!)\times 6! = (1^3+7^1)\times(3^6\times 4^4+6^7)$$
$$\mathbf{3870720} := (4!\times 2!\times 1!+6!)\times 7! = 4^6\times(2^7\times(1^4+6^1)+7^2)$$
$$\mathbf{4147200} := 1!\times 2!\times 4!\times 5!\times 6! = 1^6\times 2^5\times 4^1\times 5^2\times 6^4$$
$$\mathbf{4147201} := 1!+2!\times 4!\times 5!\times 6! = 1^6+2^5\times 4^1\times 5^2\times 6^4$$
$$\mathbf{4838406} := (1!+(8!+9!)\times 2!)\times 3! = 1^9+(8^1+9^3)\times(2^2+3^8)$$

$$\mathbf{5443200} := (2!+3!+1!)\times 5!\times 7! = (2^7\times 3^5)\times 1^3\times 5^2\times 7^1$$
$$= 2^7\times 3^5\times(1^1+5^3+7^2)$$

$$\mathbf{7879680} := 4!\times(2!+3!)\times(8!+6!) = (4^6+2^8+3^3\times 8^2)\times 6^4$$

$$\mathbf{12441600} := 1!\times 5!\times 3!\times 6!\times 4! = (1^3+5^1)\times(3^6+6^4)\times 4^5$$
$$\mathbf{12614400} := (3!\times 4!+2!)\times 6!\times 5! = (3^3\times 4^4+2^6\times 6^5)\times 5^2$$
$$\mathbf{17418240} := (1!+2!)\times 8!\times(5!+4!) = (1^1+2^8\times 8^2+5^4\times 4^5$$
$$\mathbf{17625600} := 4!\times 2!\times(3!\times 6!+9!) = (4^6+2^9\times 3^2)\times(6^4+9^3)$$
$$\mathbf{24883200} := 2!\times 3!\times 4!\times 6!\times 5! = 2^4\times(3^5\times 4^3+6^6)\times 5^2$$
$$\mathbf{29393280} := (1!+2!+3!+6!)\times 8! = 1^3\times 2^6\times 3^8\times(6^1+8^2)$$
$$\mathbf{32659200} := (2!+3!+1!)\times 6!\times 7! = 2^7\times 3^6\times(1^2+6^1+7^3)$$
$$\mathbf{33868800} := (2!+3!)\times 7!\times(5!+6!) = (2^6\times 3^7+7^5+5^2)\times 6^3$$
$$\mathbf{34836480} := 1!\times 8!\times(6!+3!\times 4!) = ((1^4+8^1)\times 6^3+3^8)\times 4^6$$
$$\mathbf{35320320} := 3!\times(2!+4!+5!)\times 8! = (3^4\times 2^2+4^8+5^5)\times 8^3$$
$$\mathbf{39674880} := ((2!+3!)\times 5!+4!)\times 8! = (2^4+(3^8+5^5)\times 4^3)\times 8^2$$
$$\mathbf{59097600} := 2!\times 6!\times(8!+3!\times 5!) = (2^8\times 6^5+8^3\times 3^6)\times 5^2$$
$$\mathbf{88179840} := (1!+2!)\times(6!\times 8!+9!) = 1^8\times 2^1\times(6^9+8^2\times 9^6)$$
$$\mathbf{91445760} := 1!\times 9!\times(5!+3!)\times 2! = (1^2+9^3+5^1)\times 3^5\times 2^9$$
$$\mathbf{97977600} := (4!+2!\times 5!+3!)\times 9! = (4^3+2^9)\times 5^2\times(3^5+9^4)$$

$$\mathbf{104509440} := (5!+4!\times(1!+3!))\times 9! = 5^1\times 4^5\times 1^4\times(3^9+9^3)$$
$$\mathbf{272160000} := (1!\times 3!+6!+4!)\times 9! = 1^6\times 3^3\times(6^9+4^4\times 9^1)$$

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http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{272160001} &:= 1! + (3! + 6! + 4!) \times 9! &&= 1^6 + 3^3 \times (6^9 + 4^4 \times 9^1)\\
\mathbf{609638400} &:= (5! \times (2! + 3!) + 6!) \times 9! &&= 5^2 \times 2^9 \times (3^5 + 6^6 + 9^3)\\
\\
\mathbf{1045094400} &:= 2! \times 9! \times (3! \times 5! + 6!) &&= (2^5 \times 9^2 + 3^9 + 5^3) \times 6^6\\
\mathbf{8360755200} &:= (2! + 3!) \times 9! \times 4! \times 5! &&= 2^4 \times (3^9 + 9^3) \times 4^5 \times 5^2\\
\\
\mathbf{20901888000} &:= 1! \times 6! \times 3! \times 5! \times 8! &&= (1^8 + 6^1) \times 3^6 \times 5^3 \times 8^5\\
\mathbf{27869184000} &:= (2! + 3!) \times 6! \times 5! \times 8! &&= 2^8 \times (3^6 + 6^5) \times 5^2 \times 8^3\\
\mathbf{32659200000} &:= 5! \times (6! + 4! + 3!) \times 9! &&= 5^5 \times (6^9 + 4^4 \times (3^6 + 9^3))
\end{aligned}$$

4.2 Positive and Negative Signs Expressions

The expression (4) give results for positive and negative signs. The subsections below are numbers with permutable flexible powers of same digits as of bases with positive and negative signs.

4.2.1 Up to Three Terms Expressions

$$\begin{aligned}
\mathbf{1} &:= -1! + 2! &&= -1^2 + 2^1\\
\mathbf{3} &:= 1! + 2! &&= -1^1 + 2^2\\
\mathbf{4} &:= -1! \times 2! + 3! &&= -1^2 + 2^3 - 3^1\\
\mathbf{5} &:= 1! - 2! + 3! &&= 1^2 \times 2^3 - 3^1\\
\\
\mathbf{6} &:= (-1! + 2!) \times 3! &&= 1^2 + 2^3 - 3^1\\
&&&= -1^3 + 2^2 + 3^1\\
&&&= -1^3 - 2^1 + 3^2\\
\\
\mathbf{7} &:= -1! + 2! + 3! &&= -1^3 \times 2^1 + 3^2\\
&&&= 1^3 \times 2^2 + 3^1\\
\\
\mathbf{8} &:= 1! \times 2! + 3! &&= 1^3 - 2^1 + 3^2\\
\\
\mathbf{9} &:= 1! + 2! + 3! &&= (-1^3 + 2^1) \times 3^2\\
&&&= (-1^3 + 2^2) \times 3^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{10} &:= (-1! + 3!) \times 2! &&= -1^2 + 3^1 + 2^3\\
&&&= -1^3 + 3^2 + 2^1\\
\\
\mathbf{11} &:= 2! \times 3! - 1! &&= 2^1 + 3^2 \times 1^3\\
&&&= 2^2 \times 3^1 - 1^3\\
&&&= 2^3 + 3^1 \times 1^2\\
\\
\mathbf{17} &:= -1! - 3! + 4! &&= 1^1 \times 3^4 - 4^3\\
\mathbf{18} &:= -1! \times 3! + 4! &&= 1^1 + 3^4 - 4^3\\
\mathbf{21} &:= -1! - 2! + 4! &&= 1^2 + 2^4 + 4^1\\
\mathbf{30} &:= 1! \times 3! + 4! &&= -1^4 + 3^3 + 4^1\\
\mathbf{48} &:= 1! \times 4! \times 2! &&= (-1^2 + 4^1) \times 2^4\\
\mathbf{127} &:= 1! + 3! + 5! &&= -1^5 + 3^1 + 5^3\\
\mathbf{138} &:= -3! + 4! + 5! &&= -3^5 + 4^4 + 5^3\\
\\
\mathbf{144} &:= 1! \times 3! \times 4! &&= -1^1 + 3^4 + 4^3
\end{aligned}$$

4.2.2 Four Terms Expressions

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$$
\begin{aligned}
\mathbf{6} := 4! - (1! + 2!) \times 3! \quad &= -4^1 - 1^2 - 2^4 + 3^3 \\
&= 4^1 + 1^4 - 2^3 + 3^2 \\
&= 4^2 + 1^1 + 2^4 - 3^3 \\
&= 4^2 + 1^4 - 2^3 - 3^1
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{10} := 4! - 2! \times (1! + 3!) \quad &= -4^1 \times 2^2 - 1^4 + 3^3 \\
&= 4^1 + 2^4 - 1^3 - 3^2 \\
&= 4^2 - 2^3 - 1^4 + 3^1 \\
&= -4^2 - 2^1 + 1^4 + 3^3
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{11} := (4! - 1!) - 2! \times 3! \quad &= 4^1 \times 1^3 + 2^4 - 3^2 \\
&= -4^1 \times 1^4 \times 2^2 + 3^3 \\
&= 4^2 \times 1^4 - 2^3 + 3^1 \\
&= 4^2 \times (1^4 - 2^1) + 3^3
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{12} := -1! \times 2! \times 3! + 4! \quad &= -1^1 - 2^2 + 3^4 - 4^3 \\
&= 1^3 + 2^4 - 3^2 + 4^1 \\
&= -1^4 + 2^1 + 3^3 - 4^2 \\
&= 1^4 - 2^3 + 3^1 + 4^2 \\
:= (2! + 5!) \times 3! - 6! \quad &= 2^6 - 5^2 - 3^5 + 6^3
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{13} := 1! - 2! \times 3! + 4! \quad &= -1^1 \times 2^2 + 3^4 - 4^3 \\
&= -(1^2 + 2^4) \times 3^1 + 4^3 \\
&= 1^4 \times 2^1 + 3^3 - 4^2 \\
&= 1^4 \times 2^3 + 3^2 - 4^1
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{14} := (1! - 3!) \times 2! + 4! \quad &= 1^1 + 3^4 - 2^2 - 4^3 \\
&= -1^2 + 3^3 - 2^4 + 4^1 \\
&= -1^2 + 3^4 - 2^1 - 4^3 \\
&= 1^4 + 3^2 + 2^3 - 4^1
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{15} := (4! - 1!) - 2! - 3! \quad &= -(4^1 - 1^4) \times 2^2 + 3^3 \\
&= (4^1 - 1^4) \times 2^3 - 3^2 \\
&= 4^1 \times 1^2 - 2^4 + 3^3 \\
&= -4^3 \times 1^2 - 2^1 + 3^4
\end{aligned}
$$

$$
\mathbf{16} := -1! \times 3! + 4! - 2! \quad = 1^2 + 3^3 + 4^1 - 2^4
$$

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http://doi.org/10.5281/zenodo.2573569

$$= 1^2 + 3^4 - 4^3 - 2^1$$
$$= (-1^3 + 3^1) \times 4^2 - 2^4$$
$$= (-1^3 + 3^2) \times 4^1 - 2^4$$

17 $:= 1! - 2! - 3! + 4!$ $= 1^2 - 2^4 \times 3^1 + 4^3$
$= (-1^2 + 2^1) \times 3^4 - 4^3$

18 $:= (1! - 2!) \times 3! + 4!$ $= -1^2 + 2^1 + 3^4 - 4^3$
$= -1^4 - 2^2 + 3^3 - 4^1$

18 $:= (4! - 1!) \times 3! - 5!$ $= 4^4 \times 1^3 - 3^5 + 5^1$

19 $:= -1! + 2! - 3! + 4!$ $= (1^2 - 2^4) \times 3^1 + 4^3$
$= 1^2 \times 2^1 + 3^4 - 4^3$
$= -1^4 \times 2^2 + 3^3 - 4^1$
$= -1^3 - 2^4 + 3^2 \times 4^1$

20 $:= 1! \times 2! - 3! + 4!$ $= -1^1 + 2^2 + 3^4 - 4^3$
$= 1^2 + 2^1 + 3^4 - 4^3$
$= 1^4 - 2^2 + 3^3 - 4^1$
$= -1^4 + 2^3 + 3^2 + 4^1$
$= -1^4 + 2^3 - 3^1 + 4^2$
$= -1^3 \times 2^4 + 3^2 \times 4^1$

21 $:= 1! + 2! - 3! + 4!$ $= 1^1 \times 2^2 + 3^4 - 4^3$
$= 1^3 \times 2^4 + 3^2 - 4^1$
$= 1^4 \times 2^3 - 3^1 + 4^2$
$= 1^4 \times 2^3 + 3^2 + 4^1$
$= -1^4 + 2^1 \times (3^3 - 4^2)$

23 $:= -1! + 3! \times 4! - 5!$ $= 1^5 + 3^4 - 4^3 + 5^1$
24 $:= (2! - 3!) \times 4! + 5!$ $= 2^5 + 3^4 - 4^3 - 5^2$

27 $:= -1! - 2! + 3! + 4!$ $= 1^1 \times 2^4 + 3^3 - 4^2$
$= 1^4 \times 2^2 + 3^3 - 4^1$
$= 1^4 \times 2^3 + 3^1 + 4^2$
$= -1^4 - 2^3 + 3^2 \times 4^1$

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$$= -1^3 + (2^4 - 3^2) \times 4^1$$

28 $:= -1! \times 2! + 3! + 4!$
$$= 1^1 + 2^4 + 3^3 - 4^2$$
$$= -1^3 + 2^4 - 3^1 + 4^2$$
$$= (1^3 \times 2^4 - 3^2) \times 4^1$$
$$= 1^4 + 2^2 + 3^3 - 4^1$$
$$= 1^4 + 2^3 + 3^1 + 4^2$$
$$= -1^4 \times 2^3 + 3^2 \times 4^1$$

29 $:= 1! - 2! + 3! + 4!$
$$= 1^3 \times 2^4 - 3^1 + 4^2$$
$$= 1^3 \times 2^4 + 3^2 + 4^1$$
$$= 1^4 - 2^3 + 3^2 \times 4^1$$

30 $:= (-1! + 2!) \times 3! + 4!$
$$= 1^3 + 2^4 - 3^1 + 4^2$$
$$= 1^3 + 2^4 + 3^2 + 4^1$$

31 $:= 2! - 1! + 4! + 3!$
$$= (2^3 - 1^1) \times 4^2 - 3^4$$
$$= 2^3 \times (1^4 + 4^1) - 3^2$$
$$= -2^4 - 1^3 + 4^2 \times 3^1$$

32 $:= 1! \times 3! + 2! + 4!$
$$= (1^2 - 3^1) \times 2^4 + 4^3$$
$$= (1^3 - 3^2 + 2^4) \times 4^1$$
$$= 1^3 \times 3^1 \times 2^4 - 4^2$$
$$= (-1^4 + 3^2) \times (2^3 - 4^1)$$
$$= (1^4 + 3^1) \times (-2^3 + 4^2)$$

33 $:= 1! + 2! + 4! + 3!$
$$= (-1^2 + 2^4) \times 4^1 - 3^3$$
$$= -(1^3 + 2^1) \times 4^2 + 3^4$$
$$= 1^3 - 2^4 + 4^2 \times 3^1$$
$$= (1^4 + 2^1) \times (-4^2 + 3^3)$$
$$= -1^2 + 2^1 \times (-4^3 + 3^4)$$

34 $:= (-1! - 3! + 4!) \times 2!$
$$= (1^2 \times 3^4 - 4^3) \times 2^1$$
$$= -1^3 + 3^1 + 4^2 + 2^4$$
$$= -1^4 + 3^3 + 4^1 + 2^2$$

35 $:= -1! + 4! + 3! \times 2!$
$$= (1^3 + 4^2) \times 3^1 - 2^4$$

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http://doi.org/10.5281/zenodo.2573569

$$= (-1^4 + 4^1) \times 3^2 + 2^3$$
$$= 1^4 \times 4^1 + 3^3 + 2^2$$
$$= (1^3 + 4^1) \times (-3^2 + 2^4)$$
$$= 1^2 - (4^3 - 3^4) \times 2^1$$

36 $:= (-1! \times 3! + 4!) \times 2!$
$$= (1^2 + 3^4 - 4^3) \times 2^1$$
$$= 1^3 + 3^1 + 4^2 + 2^4$$
$$= 1^4 + 3^3 + 4^1 + 2^2$$
$$= -1^2 - 3^3 + 4^1 \times 2^4$$
$$= (1^4 \times 3^2) \times (-4^1 + 2^3)$$

37 $:= 3! \times 2! + 1! + 4!$
$$= 3^3 \times 2^1 - 1^4 - 4^2$$
$$= 3^1 \times (2^3 - 1^4) + 4^2$$
$$= -3^2 \times (2^1 + 1^4) + 4^3$$
$$= 3^2 + (2^3 - 1^4) \times 4^1$$
$$= -3^3 + 2^4 \times 1^2 \times 4^1$$

38 $:= (1! + 3!) \times 2! + 4!$
$$= -1^1 - 3^2 - 2^4 + 4^3$$
$$= -1^2 + 3^3 + 2^4 - 4^1$$
$$= 1^4 \times 3^3 \times 2^1 - 4^2$$

40 $:= (-1! + 4!) \times 2! - 3!$
$$= 1^1 + 4^3 - 2^4 - 3^2$$
$$= 1^2 - 4^1 + 2^4 + 3^3$$
$$= -1^4 + 4^2 - 2^1 + 3^3$$
$$= -1^4 + 4^1 \times 2^3 + 3^2$$
$$= 1^4 \times 4^2 + 2^3 \times 3^1$$

41 $:= -1! + 2! \times 4! - 3!$
$$= (1^2 + 2^4) \times 4^1 - 3^3$$
$$= -1^4 \times 2^1 + 4^2 + 3^3$$
$$= 1^4 \times 2^3 \times 4^1 + 3^2$$
$$= 1^4 - 2^3 + 4^2 \times 3^1$$

42 $:= 1! \times 2! \times 4! - 3!$
$$= 1^4 - 2^1 + 4^2 + 3^3$$
$$= -1^4 + 2^2 \times 4^1 + 3^3$$
$$= 1^4 + 2^3 \times 4^1 + 3^2$$

43 $:= 1! + 2! \times 4! - 3!$
$$= (-1^4 + 2^1) \times 4^2 + 3^3$$

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$$= 1^4 \times 2^2 \times 4^1 + 3^3$$
$$= -1^4 + 2^3 + 4^1 \times 3^2$$

44 $:= (1! + 4!) \times 2! - 3!$ $= -1^2 + 4^3 - 2^4 - 3^1$
$= -1^4 + 4^2 + 2^1 + 3^3$
$= 1^2 \times 4^1 \times (-2^4 + 3^3)$
$= 1^4 + 4^1 \times 2^2 + 3^3$

48 $:= -(1! + 2!) \times 4! + 5!$ $= -1^4 \times 2^5 + 4^2 \times 5^1$
$:= (1! + 3!) \times 4! - 5!$ $= -1^5 \times 3^4 + 4^1 + 5^3$

52 $:= (4! - 1!) \times 2! + 3!$ $= 4^3 - 1^4 - 2^1 - 3^2$
$= 4^3 + 1^2 - 2^4 + 3^1$
$= 4^3 \times 1^4 - 2^2 \times 3^1$

53 $:= 2! \times 4! - 1! + 3!$ $= (-2^1 + 4^3) \times 1^4 - 3^2$
$= 2^4 \times (4^1 + 1^2) - 3^3$
$= 2^3 + (4^1 + 1^4) \times 3^2$
$= 2^3 + (4^2 - 1^4) \times 3^1$

54 $:= 1! \times 4! \times 2! + 3!$ $= 1^4 + 4^3 - 2^1 - 3^2$
$= -1^3 + 4^1 \times 2^4 - 3^2$

55 $:= 1! + 4! \times 2! + 3!$ $= (1^1 + 4^2) \times 2^3 - 3^4$
$= (1^3 \times 4^1) \times 2^4 - 3^2$
$= (1^2 + 4^1) \times (-2^4 + 3^3)$

56 $:= (1! + 4!) \times 2! + 3!$ $= -1^1 + 4^3 - 2^4 + 3^2$
$= -1^1 - 4^2 - 2^3 + 3^4$
$= -1^4 + 4^3 + 2^1 - 3^2$
$= -1^4 + 4^3 - 2^2 - 3^1$
$= 1^3 + 4^1 \times 2^4 - 3^2$

58 $:= (3! - 1! + 4!) \times 2!$ $= -3^1 + 1^4 + 4^3 - 2^2$
$= -3^2 + 1^4 + 4^3 + 2^1$
$= 3^2 + 1^1 + 4^3 - 2^4$
$= 3^3 - 1^1 + 4^2 + 2^4$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 3^4 + 1^1 - 4^2 - 2^3$$
$$= 3^3 - 1^4 + 4^2 \times 2^1$$

59 $:= (3! + 4!) \times 2! - 1!$ $= 3^3 + 4^2 + 2^4 \times 1^1$
$= 3^3 + 4^2 \times 2^1 \times 1^4$
$= -3^2 + 4^1 \times (2^4 + 1^3)$

60 $:= 2! \times 1! \times (3! + 4!)$ $= 2^3 \times (-1^4 + 3^2) - 4^1$
$:= -2! \times (3! + 4!) + 5!$ $= 2^5 - 3^4 - 4^2 + 5^3$

61 $:= 1! + 2! \times (3! + 4!)$ $= (-1^3 + 2^4) \times 3^1 + 4^2$
$:= 1! + 2! \times (4! + 3!)$ $= -(1^3 + 2^2) \times 4^1 + 3^4$

62 $:= (1! + 3! + 4!) \times 2!$ $= -1^3 + 3^4 - 4^2 - 2^1$
$= -1^4 + 3^1 + 4^3 - 2^2$

66 $:= (1! + 2!) \times 4! - 3!$ $= -1^3 + 2^1 - 4^2 + 3^4$
$= 1^4 + 2^2 + 4^3 - 3^1$
$= 1^3 - 2^2 \times 4^1 + 3^4$

71 $:= -1! - 4! \times 2! + 5!$ $= (-1^4 + 4^1) \times 2^5 - 5^2$

72 $:= (-1! + 3! - 2!) \times 4!$ $= 1^1 - 3^2 + 2^4 + 4^3$
$= -1^1 + 3^4 + 2^3 - 4^2$
$= -1^3 + 3^4 - 2^2 - 4^1$
$= 1^4 + 3^1 + 2^2 + 4^3$
$= 1^4 + 3^2 - 2^1 + 4^3$
$= (1^4 + 3^2 + 2^3) \times 4^1$
$= (1^4 + 3^3) \times 2^1 + 4^2$
$= -1^3 + 3^2 + 2^4 \times 4^1$
$= (1^4 \times 3^1) \times (2^3 + 4^2)$
$:= 1! \times 5! - 4! \times 2!$ $= (1^4 + 5^2) \times 4^1 - 2^5$

73 $:= 5! + 1! - 4! \times 2!$ $= 5^2 - (1^5 - 4^1) \times 2^4$

78 $:= (1! + 2!) \times 4! + 3!$ $= 1^2 - 2^3 + 4^1 + 3^4$
$= 1^2 + 2^4 + 4^3 - 3^1$

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http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{88} := -2! - 3! - 4! + 5! \quad &= -2^5 + 3^4 + 4^3 - 5^2 \\
\\
\mathbf{90} := (1! + 2!) \times (4! + 3!) \quad &= 1^1 - 2^3 + 4^2 + 3^4 \\
&= -1^2 + 2^4 \times 4^1 + 3^3 \\
:= 5! \times 1! - 3! - 4! \quad &= 5^1 \times (1^5 + 3^4 - 4^3) \\
\\
\mathbf{92} := (1! - 4!) \times (2! - 3!) \quad &= -1^2 + 4^1 + 2^3 + 3^4 \\
&= 1^2 + 4^1 \times 2^4 + 3^3 \\
&= 1^4 \times 4^1 \times (-2^2 + 3^3) \\
:= 2! - 3! - 4! + 5! \quad &= 2^5 - 3^4 + 4^2 + 5^3 \\
\\
\mathbf{93} := 5! - 4! - 1! - 2! \quad &= 5^2 \times (4^1 + 1^4) - 2^5 \\
&= 5^2 + 4^1 \times (1^5 + 2^4) \\
\\
\mathbf{95} := 1! - 4! - 2! + 5! \quad &= -1^2 + 4^4 - 2^5 \times 5^1 \\
&= -1^5 + 4^2 + 2^4 \times 5^1 \\
:= -1! + (3! - 2!) \times 4! \quad &= 1^3 \times 3^4 - 2^1 + 4^2 \\
&= -1^3 + 3^1 \times (2^4 + 4^2) \\
\\
\mathbf{96} := (1! \times 3! - 2!) \times 4! \quad &= (1^1 + 3^2) \times 2^4 - 4^3 \\
&= (-1^2 + 3^1) \times 2^4 + 4^3 \\
&= (-1^2 + 3^4) \times 2^1 - 4^3 \\
&= (-1^3 + 3^2 + 2^4) \times 4^1 \\
&= 1^3 + 3^4 - 2^1 + 4^2 \\
\\
\mathbf{96} := (1! \times 3! - 2!) \times 4! \quad &= (1^4 + 3^3 - 2^2) \times 4^1 \\
&= -1^3 + 3^4 + 2^2 \times 4^1 \\
&= 1^3 \times 3^1 \times (2^4 + 4^2) \\
&= (1^4 + 3^1) \times (2^3 + 4^2) \\
&= (-1^4 + 3^2) \times (2^3 + 4^1) \\
\\
\mathbf{96} := (4! - 5!) \times (1! - 2!) \quad &= 4^2 \times 5^1 \times 1^5 + 2^4 \\
&= 4^2 \times (5^1 - 1^4) + 2^5 \\
&= 4^4 - 5^1 \times 1^2 \times 2^5 \\
:= 2! \times 5! - 3! \times 4! \quad &= 2^3 \times (5^2 + 3^5 - 4^4)
\end{aligned}$$

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$$
\begin{aligned}
\mathbf{97} := 1! - (2! - 3!) \times 4! &= (-1^3 + 2^1) \times 3^4 + 4^2 \\
&= (1^4 + 2^1) \times 3^3 + 4^2 \\
&= -1^2 + 2^1 \times 3^4 - 4^3 \\
:= -(4! + 1!) + 2! + 5! &= -4^2 \times (1^1 + 2^5) + 5^4 \\
&= 4^2 + 1^5 + 2^4 \times 5^1 \\
&= 4^4 + 1^2 - 2^5 \times 5^1
\end{aligned}
$$

$$
\mathbf{99} := 1! + 2! - 4! + 5! = (-1^4 + 2^5) \times 4^1 - 5^2
$$

$$
\begin{aligned}
\mathbf{100} := (-2! + 3!) \times (1! + 4!) &= 2^1 + 3^4 + 1^3 + 4^2 \\
&= (2^4 + 3^2) \times 1^3 \times 4^1 \\
&= 2^1 \times (3^4 + 1^2) - 4^3 \\
&= 2^2 \times (3^3 - 1^4) - 4^1
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{102} := 5! - (1! + 2!) \times 3! &= (5^2 + 1^5 + 2^3) \times 3^1 \\
&= 5^3 \times 1^1 - 2^5 + 3^2 \\
&= (5^1 + 1^5) \times (2^3 + 3^2) \\
&= -5^1 - 1^5 + 2^2 \times 3^3 \\
&= 5^2 \times (1^5 + 2^1) + 3^3
\end{aligned}
$$

$$
\mathbf{102} := 1! \times 5! + 3! - 4! = (1^5 + 5^1) \times (3^4 - 4^3)
$$

$$
\begin{aligned}
\mathbf{106} := 5! - (1! + 3!) \times 2! &= (5^2 + 1^5 + 3^3) \times 2^1 \\
&= 5^3 - 1^5 - 3^2 \times 2^1 \\
:= 5! - (3! + 1!) \times 2! &= 5^2 \times 3^1 - 1^3 + 2^5
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{107} := 5! - 1! - 3! \times 2! &= (5^2 \times 1^3) \times 3^1 + 2^5 \\
&= 5^3 \times 1^5 - 3^2 \times 2^1 \\
&= -5^1 + (1^5 + 3^3) \times 2^2
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{108} := 5! \times 1! - 3! \times 2! &= 5^1 \times (1^2 + 3^3) - 2^5 \\
&= 5^2 \times (1^5 + 3^1) + 2^3 \\
&= 5^3 + 1^5 - 3^2 \times 2^1 \\
:= 5! \times 1! - 2! \times 3! &= (5^1 - 1^5 + 2^3) \times 3^2
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{109} := 1! - 3! \times 2! + 5! &= (1^5 - 3^2) \times 2^1 + 5^3 \\
&= (-1^5 + 3^3) \times 2^2 + 5^1
\end{aligned}
$$

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http://doi.org/10.5281/zenodo.2573569

$$= -(1^5 + 3^1) \times 2^2 + 5^3$$

110 $:= 2! \times (1! - 3!) + 5!$ $= -(2^2 + 1^5) \times 3^1 + 5^3$
$= (-2^2 - 1^5 + 3^3) \times 5^1$
$= (2^5 - 1^3 - 3^2) \times 5^1$
$:= (2! - 4!) \times (1! - 3!)$ $= 2^1 \times (4^3 \times 1^4 - 3^2)$

111 $:= 5! - 3! - 2! - 1!$ $= (5^1 + 3^2) \times 2^3 - 1^5$

112 $:= 5! \times 1! - 3! - 2!$ $= (5^1 - 1^5) \times 3^3 + 2^2$
$= (5^1 \times 1^5 + 3^2) \times 2^3$
$= 5^3 - 1^5 - 3^1 \times 2^2$

113 $:= 1! - 2! - 3! + 5!$ $= -1^1 - 2^2 + 3^5 - 5^3$
$= -1^5 \times 2^2 \times 3^1 + 5^3$
$= (1^5 \times 2^2) \times 3^3 + 5^1$
$= -1^5 - 2^1 - 3^2 + 5^3$
$= 1^5 + 2^3 \times (3^2 + 5^1)$

114 $:= (1! - 2!) \times 3! + 5!$ $= -1^1 \times 2^2 + 3^5 - 5^3$
$= -1^5 \times 2^1 - 3^2 + 5^3$
$= 1^5 - 2^2 \times 3^1 + 5^3$
$= 1^5 + 2^2 \times 3^3 + 5^1$
$= -1^3 + (2^5 - 3^2) \times 5^1$

115 $:= 2! - 1! - 3! + 5!$ $= -2^1 + 1^5 - 3^2 + 5^3$
$= -2^1 - 1^2 + 3^5 - 5^3$
$= -2^2 + 1^1 + 3^5 - 5^3$
$= (-2^2 \times 1^5 + 3^3) \times 5^1$
$= (2^5 \times 1^3 - 3^2) \times 5^1$

116 $:= 1! \times 2! - 3! + 5!$ $= -1^2 \times 2^1 + 3^5 - 5^3$
$= (1^5 - 2^1) \times 3^2 + 5^3$
$= (1^5 - 2^2) \times 3^1 + 5^3$
$= 1^3 + (2^5 - 3^2) \times 5^1$
$= 1^5 - (2^2 - 3^3) \times 5^1$

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http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{117} := 1! - 3! + 2! + 5! &= 1^2 + 3^5 - 2^1 - 5^3 \\
&= -1^5 - 3^1 - 2^2 + 5^3 \\
&= -1^5 - 3^2 + 2^1 + 5^3 \\
&= (1^5 + 3^3) \times 2^2 + 5^1 \\
&= 1^5 \times 3^2 \times (2^3 + 5^1)
\end{aligned}$$

$$\mathbf{118} := (-1! + 3!) \times 4! - 2! = -1^4 - 3^2 + 4^3 \times 2^1$$

$$\begin{aligned}
\mathbf{120} := (1! + 3! - 2!) \times 4! &= (-1^4 + 3^3 + 2^2) \times 4^1 \\
&= (1^3 + 3^2) \times (2^4 - 4^1) \\
&= (1^4 - 3^1) \times (2^2 - 4^3) \\
&= 1^4 - 3^2 + 2^1 \times 4^3 \\
&= (1^4 + 3^2) \times (2^3 + 4^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{123} := 3! - 1! + 5! - 2! &= 3^1 - 1^5 + 5^3 - 2^2 \\
&= 3^5 + 1^1 - 5^3 + 2^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{124} := -1! \times 2! + 3! + 5! &= (1^3 + 2^5) \times 3^1 + 5^2 \\
&= -1^5 \times 2^2 + 3^1 + 5^3 \\
&= (1^3 - 2^5) \times (-3^2 + 5^1) \\
&= -1^1 + (2^5 - 3^3) \times 5^2 \\
&= -1^5 + (2^3 - 3^1) \times 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{125} := 1! - 2! + 3! + 5! &= (1^1 \times 2^5 - 3^3) \times 5^2 \\
&= (1^5 \times 2^2 - 3^1) \times 5^3 \\
&= (1^5 \times 2^3 - 3^1) \times 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{126} := (-1! + 2!) \times 3! + 5! &= 1^5 \times 2^2 - 3^1 + 5^3 \\
&= (1^5 + 2^3) \times (3^2 + 5^1) \\
&= 1^1 + (2^5 - 3^3) \times 5^2 \\
&= 1^5 + (2^3 - 3^1) \times 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{127} := (-1! + 2!) + 3! + 5! &= 1^5 + 2^2 - 3^1 + 5^3 \\
&= -1^3 + 2^5 \times (3^2 - 5^1) \\
&= -1^5 + 2^2 \times (3^3 + 5^1)
\end{aligned}$$

$$\mathbf{128} := 1! \times 2! + 5! + 3! = (-1^2 + 2^5) \times 5^1 - 3^3$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= 1^3 \times 2^5 \times (-5^1 + 3^2)$$

129 $:= 1! + 2! + 3! + 5!$ $= 1^3 + 2^5 \times (3^2 - 5^1)$

130 $:= 2! \times (3! - 1!) + 5!$ $= (2^3 - 3^1) \times (1^5 + 5^2)$
$= (2^5 - 3^3) \times (1^1 + 5^2)$
$= -2^5 + 3^3 \times (1^2 + 5^1)$
$:= (3! - 1!) \times 2! + 5!$ $= 3^3 \times (1^5 + 2^2) - 5^1$

131 $:= 5! + 2! \times 3! - 1!$ $= 5^3 - 2^1 + 3^2 - 1^5$
$= 5^3 + 2^2 + 3^1 - 1^5$
$= -5^3 + 2^5 \times (3^2 - 1^1)$
$:= 5! + 3! \times 2! - 1!$ $= 5^1 \times 3^3 - 2^2 \times 1^5$
$= 5^3 + 3^1 + 2^2 - 1^5$
$= 5^3 + 3^2 - 2^1 - 1^5$

132 $:= 5! + 2! \times 1! \times 3!$ $= 5^1 \times 2^5 - 1^2 - 3^3$
$= (5^3 - 2^1) \times 1^5 + 3^2$
$= 5^3 \times (2^1 + 1^2) - 3^5$
$= 5^3 \times (2^2 - 1^1) - 3^5$
$:= 1! \times 3! \times (4! - 2!)$ $= (1^3 + 3^4 - 4^2) \times 2^1$
$= (-1^4 + 3^1) \times 4^3 + 2^2$
$= 1^4 + 3^1 + 4^2 \times 2^3$

133 $:= 1! + 3! \times 2! + 5!$ $= 1^5 + 3^2 - 2^1 + 5^3$
$= -1^2 \times 3^3 + 2^5 \times 5^1$
$:= 3! \times (4! - 2!) + 1!$ $= (3^1 + 4^2) \times (2^3 - 1^4)$

134 $:= 2! \times (1! + 3!) + 5!$ $= (2^1 - 1^5) \times 3^2 + 5^3$
$= (2^2 - 1^5) \times 3^1 + 5^3$
$= 2^2 - (1^5 - 3^3) \times 5^1$

136 $:= 3! \times (-1! + 4!) - 2!$ $= (3^1 - 1^4) \times (4^3 + 2^2)$
$= 3^2 - 1^4 + 4^3 \times 2^1$

137 $:= 5! + 4! - 3! - 1!$ $= 5^3 + 4^4 - 3^5 - 1^1$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$
\begin{aligned}
\mathbf{138} := 3! \times (2! + 1!) + 5! &= (-3^2 + 2^5) \times (1^3 + 5^1) \\
&= (3^3 - 2^2) \times (1^5 + 5^1) \\
&= -3^3 + (2^5 + 1^2) \times 5^1 \\
:= (1! - 2! + 4!) \times 3! &= 1^4 + 2^1 \times 4^3 + 3^2 \\
:= 1! \times 4! - 3! + 5! &= 1^1 \times 4^4 - 3^5 + 5^3
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{139} := 1! - 3! + 4! + 5! &= 1^1 - 3^5 + 4^4 + 5^3 \\
&= -1^5 + 3^4 + 4^3 - 5^1
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{140} := 2! + 3! \times (4! - 1!) &= -2^2 + 3^4 + 4^3 - 1^1 \\
&= (2^4 \times 3^2 - 4^1) \times 1^3 \\
:= 2! + 4! - 3! + 5! &= -2^5 \times 4^2 + 3^3 + 5^4
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{141} := 3! \times 4! - 1! - 2! &= (3^4 + 4^3) \times 1^1 - 2^2 \\
&= 3^1 \times (4^3 - 1^2 - 2^4) \\
&= -3^1 + 4^2 \times (1^4 + 2^3) \\
:= 4! - 1! + 5! - 2! &= (4^1 + 1^5) \times 5^2 + 2^4
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{142} := 1! \times 3! \times 4! - 2! &= 1^1 + 3^4 + 4^3 - 2^2 \\
&= -1^2 + 3^4 + 4^3 - 2^1
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{143} := 1! + 3! \times 4! - 2! &= 1^2 \times 3^4 + 4^3 - 2^1 \\
&= -1^2 + 3^1 \times (4^3 - 2^4) \\
:= 1! - 2! + 5! + 4! &= -1^4 + 2^5 \times 5^1 - 4^2
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{144} := (2! - 1!) \times 3! \times 4! &= -2^1 + 1^2 + 3^4 + 4^3 \\
&= 2^1 \times (-1^3 + 3^4) - 4^2 \\
&= -2^2 \times (1^1 + 3^3) + 4^4 \\
&= 2^1 \times (-1^4 + 3^2 + 4^3) \\
&= 2^3 \times (-1^4 + 3^1 + 4^2) \\
&= 2^4 - (1^2 - 3^1) \times 4^3 \\
:= (2! - 1!) \times 5! + 4! &= 2^5 \times 1^4 \times 5^1 - 4^2
\end{aligned}
$$

$$
\begin{aligned}
\mathbf{145} := 4! - 1! + 2! + 5! &= -(4^2 - 1^1) \times 2^5 + 5^4 \\
&= -4^2 + 1^4 + 2^5 \times 5^1 \\
:= 4! \times 3! + 2! - 1! &= (4^3 + 3^2) \times 2^1 - 1^4 \\
&= -4^2 + 3^4 \times 2^1 - 1^3
\end{aligned}
$$

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http://doi.org/10.5281/zenodo.2573569

$$= (4^3 + 3^4) \times (2^1 - 1^2)$$

146 $:= 1! \times 4! \times 3! + 2!$ $= -1^2 + 4^3 + 3^4 + 2^1$
$= -1^3 \times 4^2 + 3^4 \times 2^1$

147 $:= 4! \times 3! + 2! + 1!$ $= 4^1 + 3^2 \times 2^4 - 1^3$
$= -4^2 + 3^4 \times 2^1 + 1^3$
$= 4^4 - 3^3 \times 2^2 - 1^1$
$:= 3! \times 4! + 2! + 1!$ $= 3^1 \times (4^3 - 2^4 + 1^2)$

148 $:= (4! + 1!) \times 3! - 2!$ $= 4^3 - 1^1 + 3^4 + 2^2$
$= 4^3 + 1^2 + 3^4 + 2^1$
$= (4^3 + 1^4 + 3^2) \times 2^1$
$= 4^1 \times 1^3 + 3^2 \times 2^4$
$= 4^4 \times 1^1 - 3^3 \times 2^2$
$= -4^2 + (1^3 + 3^4) \times 2^1$

149 $:= 3! - 1! + 4! + 5!$ $= 3^4 - 1^5 + 4^3 + 5^1$
150 $:= (2! - 1! + 4!) \times 3!$ $= 2^2 + 1^1 + 4^3 + 3^4$

152 $:= 2! + 3! + 4! + 5!$ $= 2^5 + 3^4 + 4^3 - 5^2$
$:= 2! + 3! \times (1! + 4!)$ $= 2^2 \times (-3^3 + 1^1) + 4^4$

155 $:= -1! + (2! + 4!) \times 3!$ $= (1^4 + 2^2) \times (4^1 + 3^3)$
156 $:= 1! \times 3! \times (2! + 4!)$ $= (1^3 + 3^2) \times 2^4 - 4^1$
168 $:= (-1! + 2! + 3!) \times 4!$ $= (-1^2 + 2^4 + 3^3) \times 4^1$
184 $:= (-1! + 4!) \times (2! + 3!)$ $= 1^1 \times 4^4 - 2^3 \times 3^2$
191 $:= -1! + 4! \times (3! + 2!)$ $= (1^4 + 4^3) \times 3^1 - 2^2$

192 $:= 4! \times (3! \times 1! + 2!)$ $= (4^1 + 3^2 - 1^3) \times 2^4$
$= (4^2 - 3^1 - 1^3) \times 2^4$
$= (-4^2 + 3^3 + 1^1) \times 2^4$
$= (4^2 + 3^4 - 1^3) \times 2^1$
$= 4^3 + (3^2 - 1^1) \times 2^4$
$= 4^4 - (3^2 - 1^1) \times 2^3$

192 $:= 2! \times (-4! + 5!) \times 1!$ $= (2^4 + 4^2) \times (5^1 + 1^5)$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$= (2^5 + 4^2) \times (5^1 - 1^4)$$

$$\begin{aligned} \mathbf{193} := (2! + 3!) \times 4! + 1! &= 2^1 \times (3^4 + 4^2) - 1^3 \\ &= 2^2 + 3^1 \times (4^3 - 1^4) \\ := 4! \times (3! + 2!) + 1! &= 4^4 - 3^2 \times (2^3 - 1^1) \end{aligned}$$

$$\mathbf{200} := (4! + 1!) \times (3! + 2!) = 4^4 - (1^2 + 3^3) \times 2^1$$

$$\begin{aligned} \mathbf{216} := (2! + 3! + 1!) \times 4! &= 2^3 \times 3^2 \times (-1^4 + 4^1) \\ := 5! + (3! - 2!) \times 4! &= (-5^3 + 3^5) \times 2^2 - 4^4 \end{aligned}$$

$$\mathbf{218} := (1! + 5!) \times 2! - 4! = -1^2 - 5^1 - 2^5 + 4^4$$

$$\begin{aligned} \mathbf{222} := 2! \times 5! - 4! + 3! &= -2^5 + 5^2 + 4^4 - 3^3 \\ &= 2^5 + 5^3 - 4^2 + 3^4 \end{aligned}$$

$$\begin{aligned} \mathbf{226} := 2! \times (5! - 1! - 3!) &= (2^3 - 5^2) \times 1^1 + 3^5 \\ \mathbf{227} := 2! \times (5! - 3!) - 1! &= (2^3 - 5^2) + 3^5 + 1^1 \end{aligned}$$

$$\begin{aligned} \mathbf{228} := 1! \times 2! \times (5! - 3!) &= (1^3 - 2^2) \times 5^1 + 3^5 \\ &= (1^5 + 2^3) \times 5^2 + 3^1 \end{aligned}$$

$$\mathbf{229} := 1! - 2! \times (3! - 5!) = -1^2 - 2^3 + 3^5 - 5^1$$

$$\begin{aligned} \mathbf{230} := (1! - 3! + 5!) \times 2! &= 1^2 \times 3^5 - 5^1 - 2^3 \\ &= (-1^5 - 3^2 + 5^3) \times 2^1 \end{aligned}$$

$$\begin{aligned} \mathbf{232} := 2! \times (5! - 1!) - 3! &= 2^1 \times (5^3 \times 1^5 - 3^2) \\ &= 2^3 \times (5^2 + 1^5 + 3^1) \end{aligned}$$

$$\begin{aligned} \mathbf{233} := 2! \times 5! - 3! - 1! &= -2^2 - 5^1 + 3^5 - 1^3 \\ &= 2^1 \times (5^3 - 3^2) + 1^5 \end{aligned}$$

$$\begin{aligned} \mathbf{234} := 2! \times 5! \times 1! - 3! &= -(2^2 + 5^1) \times 1^3 + 3^5 \\ &= (2^5 - 5^1 - 1^3) \times 3^2 \\ &= (2^2 + 5^1) \times (-1^5 + 3^3) \\ &= 2^1 \times (-5^3 - 1^2 + 3^5) \end{aligned}$$

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http://doi.org/10.5281/zenodo.2573569

$$= 2^1 \times (5^3 + 1^5 - 3^2)$$

235 $:= 1! - 3! + 5! \times 2!$ $= 1^3 + 3^5 - 5^1 - 2^2$

$= -1^2 + (3^5 - 5^3) \times 2^1$

236 $:= (1! + 5!) \times 2! - 3!$ $= (-1^2 + 5^1) \times (2^5 + 3^3)$

$:= 2! \times (1! + 5!) - 3!$ $= 2^1 \times 1^2 \times (-5^3 + 3^5)$

240 $:= 4! \times 2! \times (3! - 1!)$ $= (4^3 + 2^4) \times 3^1 \times 1^2$

$= 4^4 - 2^3 - 3^2 + 1^1$

$= (4^3 - 2^2) \times (3^1 + 1^4)$

$= 4^4 - 2^1 \times (3^2 - 1^3)$

$= 4^4 - 2^2 \times (3^1 + 1^3)$

$= 4^4 - 2^3 \times (3^1 - 1^2)$

$:= 5! - 4! \times (1! - 3!)$ $= 5^1 \times 4^3 + 1^5 - 3^4$

244 $:= 3! + 2! \times (5! - 1!)$ $= (3^5 - 2^2 + 5^1) \times 1^3$

$= 3^2 \times (2^5 - 5^1) + 1^3$

$= 3^3 \times (2^2 + 5^1) + 1^5$

245 $:= 3! - 1! + 2! \times 5!$ $= 3^5 - 1^2 + 2^3 - 5^1$

$= 3^5 + 1^3 - 2^2 + 5^1$

246 $:= 1! \times 3! + 5! \times 2!$ $= 1^2 \times 3^5 - 5^1 + 2^3$

$= (-1^5 + 3^1) \times 5^3 - 2^2$

247 $:= 2! \times 5! + 1! + 3!$ $= 2^3 - 5^1 + 1^2 + 3^5$

250 $:= (5! - 1! + 3!) \times 2!$ $= 5^2 \times (-1^5 + 3^1 + 2^3)$

$= 5^3 \times (1^5 - 3^1 + 2^2)$

251 $:= -1! + 2! \times (3! + 5!)$ $= -1^3 + 2^2 + 3^5 + 5^1$

252 $:= 1! \times 2! \times (5! + 3!)$ $= (1^3 + 2^5 - 5^1) \times 3^2$

254 $:= (1! + 3! + 5!) \times 2!$ $= (-1^5 + 3^1) \times 5^3 + 2^2$

258 $:= 5! + (4! - 1!) \times 3!$ $= 5^3 \times 4^1 + 1^4 - 3^5$

262 $:= (5! - 1!) \times 2! + 4!$ $= -5^2 - 1^1 + 2^5 + 4^4$

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$$= 5^1 + 1^5 + 2^4 \times 4^2$$

263 $:= 2! \times 5! - 1! + 4!$ $= 2^5 - 5^2 \times 1^1 + 4^4$

264 $:= 1! \times 2! \times 5! + 4!$ $= 1^1 + 2^5 - 5^2 + 4^4$
$= -1^5 + 2^2 + 5^1 + 4^4$

264 $:= (2! \times 3! - 1!) \times 4!$ $= -2^1 + 3^2 + 1^3 + 4^4$
$= 2^2 + 3^1 + 1^3 + 4^4$
$= 2^2 \times (3^4 + 1^1) - 4^3$
$= 2^2 \times (3^1 - 1^4 + 4^3)$

266 $:= 2! + 3! \times 4! + 5!$ $= -2^4 + 3^5 + 4^3 - 5^2$
276 $:= 2! \times (3! + 5!) + 4!$ $= -2^5 + 3^3 + 5^2 + 4^4$

282 $:= (2! \times 4! - 1!) \times 3!$ $= -2^1 + 4^4 + 1^2 + 3^3$
$= 2^4 \times 4^2 - 1^1 + 3^3$

286 $:= 2! \times (3! \times 4! - 1!)$ $= 2^1 + 3^3 + 4^4 + 1^2$
$= 2^2 + 3^3 + 4^4 - 1^1$

287 $:= 2! \times 3! \times 4! - 1!$ $= 2^2 + 3^3 + 4^4 \times 1^1$
$= 2^3 \times 3^2 \times 4^1 - 1^4$

288 $:= 2! \times 3! \times 1! \times 4!$ $= (-2^3 + 3^4 - 1^2) \times 4^1$
$= (2^4 + 3^1 - 1^3) \times 4^2$
$= 2^1 \times (3^4 - 1^2 + 4^3)$
$:= 2! \times (4! \times 1! + 5!)$ $= (2^4 - 4^1) \times (-1^5 + 5^2)$

289 $:= 1! + 2! \times 3! \times 4!$ $= -1^2 + 2^1 \times (3^4 + 4^3)$

312 $:= (1! + 3! \times 2!) \times 4!$ $= (1^3 + 3^4 - 2^2) \times 4^1$
$= (1^2 - 3^3) \times (-2^4 + 4^1)$

336 $:= (1! + 2!) \times 5! - 4!$ $= (1^5 \times 2^4 + 5^1) \times 4^2$
$= 1^5 \times 2^4 \times (5^2 - 4^1)$
$:= (1! + 3!) \times 2! \times 4!$ $= (-1^3 + 3^4 + 2^2) \times 4^1$

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$$= -1^1 + 3^4 + 2^2 \times 4^3$$
$$= (1^2 + 3^3) \times (2^4 - 4^1)$$

$$\mathbf{342} := (2! + 1!) \times (5! - 3!) = (2^5 + 1^3 + 5^1) \times 3^2$$
$$= -2^5 - 1^2 + 5^3 \times 3^1$$

$$\mathbf{354} := (1! + 2!) \times 5! - 3! = (1^1 - 2^2) \times (5^3 - 3^5)$$
$$= (1^2 + 2^1) \times (-5^3 + 3^5)$$

$$\mathbf{366} := 3! + (1! + 2!) \times 5! = 3^5 \times 1^2 - 2^1 + 5^3$$
$$= 3^1 \times (1^5 - 2^2 + 5^3)$$
$$= -3^2 + (1^5 + 2^1) \times 5^3$$

$$\mathbf{378} := (1! + 2!) \times (3! + 5!) = -1^5 + 2^2 + 3^1 \times 5^3$$

$$\mathbf{384} := 4! + 5! \times (1! + 2!) = (4^2 - 5^1 + 1^4) \times 2^5$$
$$= 4^4 + (5^1 - 1^2) \times 2^5$$

$$\mathbf{432} := 4! \times (1! + 2!) \times 3! = (4^1 - 1^3) \times 2^4 \times 3^2$$
$$= (4^3 \times 1^1 - 2^4) \times 3^2$$
$$= 4^2 \times (-1^4 + 2^1) \times 3^3$$
$$:= (4! + 5!) \times (1! + 2!) = 4^2 \times (-5^1 \times 1^4 + 2^5)$$

$$\mathbf{468} := 6! - 2! \times (3! + 5!) = 6^2 + 2^6 + 3^5 + 5^3$$
$$\mathbf{476} := (5! - 1!) \times (3! - 2!) = (-5^3 + 1^1 + 3^5) \times 2^2$$
$$\mathbf{480} := 1! \times 5! \times (3! - 2!) = (1^3 + 5^1 + 3^2) \times 2^5$$
$$\mathbf{484} := (1! + 5!) \times (3! - 2!) = (-1^5 + 5^3 - 3^1) \times 2^2$$
$$\mathbf{552} := 6! - (1! + 3!) \times 4! = -6^3 \times 1^6 + 3^1 \times 4^4$$
$$\mathbf{570} := 6! - 3! \times (1! + 4!) = 6^4 - 3^6 - 1^3 + 4^1$$
$$\mathbf{576} := (4! + 5!) \times (3! - 2!) = 4^5 + (5^2 - 3^4) \times 2^3$$
$$\mathbf{577} := 1! + (5! - 4!) \times 3! = -(1^5 - 5^3) \times 4^1 + 3^4$$

$$\mathbf{582} := (1! - 4! + 5!) \times 3! = 1^5 + 4^1 \times 5^3 + 3^4$$
$$:= (3! - 4! - 5!) + 6! = 3^6 + 4^5 + 5^3 - 6^4$$

$$\mathbf{598} := (3! - 1!) \times 5! - 2! = (3^3 - 1^5) \times (5^2 - 2^1)$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{600} := (1! - 2! + 3!) \times 5! \quad &= 1^5 \times 2^3 \times 3^1 \times 5^2 \\
&= (-1^5 - 2^1 + 3^3) \times 5^2 \\
:= 5! \times (1! - 2!) + 6! \quad &= (5^1 + 1^5) \times (2^6 + 6^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{608} := (2! - 5!) + 3! + 6! \quad &= -2^5 - 5^3 + 3^6 + 6^2 \\
\mathbf{610} := (5! + 2!) \times (3! - 1!) \quad &= 5^3 + 2^1 \times 3^5 - 1^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{624} := (3! - 1!) \times 5! + 4! \quad &= (-3^4 + 1^3) \times 5^1 + 4^5 \\
&= 3^5 \times 1^1 + 5^3 + 4^4
\end{aligned}$$

$$\begin{aligned}
\mathbf{672} := 3! \times 5! - 4! \times 2! \quad &= (-3^4 + 5^3) \times 4^2 - 2^5 \\
\mathbf{689} := 6! - 4! - 3! - 1! \quad &= 6^3 - 4^4 + 3^6 \times 1^1 \\
\mathbf{690} := 6! - 4! - 3! \times 1! \quad &= 6^3 - 4^4 + 3^6 + 1^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{702} := (-1! - 2! + 5!) \times 3! \quad &= (-1^2 + 2^5 - 5^1) \times 3^3 \\
&= (-1^5 + 2^1 + 5^2) \times 3^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{702} := 6! - 3! \times (2! + 1!) \quad &= -6^2 + 3^6 + 2^3 + 1^1 \\
\mathbf{704} := 2! + 3! - 4! + 6! \quad &= (-2^6 + 3^3) \times 4^2 + 6^4 \\
\mathbf{706} := 6! - 2! \times (1! + 3!) \quad &= -6^1 \times 2^2 + 1^3 + 3^6 \\
\mathbf{707} := -1! + 3! \times (5! - 2!) \quad &= 1^1 \times 3^3 \times 5^2 + 2^5 \\
\mathbf{708} := 1! \times 3! \times (5! - 2!) \quad &= 1^1 + 3^3 \times 5^2 + 2^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{709} := 1! + 6! - 2! \times 3! \quad &= (1^3 - 6^1) \times 2^2 + 3^6 \\
:= 1! + 6! - 3! \times 2! \quad &= (-1^2 + 6^3) \times 3^1 + 2^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{711} := -1! - 2! + 6! - 3! \quad &= (1^3 - 2^2) \times 6^1 + 3^6 \\
&= -1^2 + 2^6 + 6^3 \times 3^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{712} := 6! - 3! - 2! \times 1! \quad &= (6^3 \times 3^1 + 2^6) \times 1^2 \\
\mathbf{713} := 1! - 2! - 3! + 6! \quad &= 1^2 + 2^6 + 3^1 \times 6^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{714} := (1! - 2!) \times 3! + 6! \quad &= -1^2 - 2^3 + 3^6 - 6^1 \\
:= (1! - 2! + 5!) \times 3! \quad &= (1^3 - 2^2) \times (5^1 - 3^5)
\end{aligned}$$

$$\begin{aligned}
\mathbf{715} := 6! - 1! - 3! + 2! \quad &= -6^1 \times 1^2 + 3^6 - 2^3 \\
&= (6^3 + 1^2) \times 3^1 + 2^6
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{716} := 1! \times 2! - 3! + 6! &= 1^2 - 2^3 + 3^6 - 6^1 \\
:= -1! \times 3! + 2! + 6! &= 1^2 + 3^6 - 2^3 - 6^1 \\
:= 1! \times 6! - 3! + 2! &= 1^2 - 6^1 + 3^6 - 2^3
\end{aligned}$$

$$\mathbf{720} := (-1! + 3!) \times (4! + 5!) = (-1^5 + 3^4 + 4^3) \times 5^1$$

$$\begin{aligned}
\mathbf{724} := (1! + 5!) \times 3! - 2! &= -1^3 + 5^2 \times (-3^1 + 2^5) \\
&= -1^5 + 5^2 \times (3^3 + 2^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{726} := 3! \times (2! + 5! - 1!) &= -(3^1 - 2^5) \times 5^2 + 1^3 \\
&= (3^3 + 2^1) \times 5^2 + 1^5 \\
:= (2! - 1!) \times 6! + 3! &= 2^2 - 1^3 - 6^1 + 3^6 \\
&= -2^3 - 1^2 + 6^1 + 3^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{727} := 2! - 1! + 3! + 6! &= 2^2 \times 1^3 + 3^6 - 6^1 \\
&= -2^3 \times 1^2 + 3^6 + 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{728} := 1! \times 3! + 2! + 6! &= -(1^1 - 3^2) \times 2^6 + 6^3 \\
&= 1^2 + 3^6 - 2^3 + 6^1 \\
&= 1^3 + 3^6 + 2^2 - 6^1 \\
&= (1^1 - 3^3) \times (-2^6 + 6^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{729} := 1! + 2! + 6! + 3! &= (-1^1 + 2^6 - 6^2) \times 3^3 \\
&= (-1^2 + 2^3 - 6^1) \times 3^6 \\
&= (-1^3 - 2^2 + 6^1) \times 3^6
\end{aligned}$$

$$\begin{aligned}
\mathbf{730} := (3! - 1!) \times 2! + 6! &= 3^6 - 1^2 + 2^3 - 6^1 \\
&= 3^6 - 1^3 - 2^2 + 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{731} := 2! \times 3! - 1! + 6! &= -2^2 + 3^6 \times 1^3 + 6^1 \\
&= 2^3 + 3^6 \times 1^2 - 6^1
\end{aligned}$$

$$\begin{aligned}
\mathbf{732} := 1! \times 2! \times 3! + 6! &= 1^2 + 2^3 + 3^6 - 6^1 \\
&= 1^3 - 2^2 + 3^6 + 6^1 \\
:= 1! \times 3! \times (2! + 5!) &= (1^2 + 3^5) \times (2^3 - 5^1)
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{738} &:= (1!+2!)\times 3!+6! && = -1^3+2^2+3^6+6^1\\
\mathbf{743} &:= 3!\times 5!-1!+4! && = 3^5+5^3\times 1^4\times 4^1\\
\mathbf{756} &:= 4!+(2!+5!)\times 3! && = 4^3\times 2^4-5^2-3^5\\
\mathbf{768} &:= 1!\times 6!+2!\times 4! && = (1^6+6^1-2^2)\times 4^4\\
\mathbf{780} &:= 2!\times(4!+3!)+6! && = 2^6-4^4+3^3\times 6^2\\
\mathbf{816} &:= 5!\times(1!+3!)-4! && = 5^4-1^5+3^1\times 4^3\\
\mathbf{826} &:= (1!+3!)\times(-2!+5!) && = -1^1+3^3+2^5\times 5^2
\end{aligned}$$

$$\begin{aligned}
\mathbf{838} &:= 1!\times 5!-2!+6! && = (1^6+5^2)\times 2^5+6^1\\
&:= (1!+3!)\times 5!-2! && = 1^1+3^2\times(5^3-2^5)
\end{aligned}$$

$$\begin{aligned}
\mathbf{840} &:= (2!+3!-1!)\times 5! && = 2^5\times 3^3+1^1-5^2\\
& && = (2^5+3^1)\times(-1^3+5^2)
\end{aligned}$$

$$\begin{aligned}
\mathbf{842} &:= 2!+(1!+3!)\times 5! && = (2^5-1^2)\times 3^3+5^1\\
\mathbf{847} &:= 1!+3!+5!+6! && = -1^5+3^6+5^3-6^1\\
\mathbf{848} &:= 2!+6!+3!+5! && = -2^6\times 6^2+3^3+5^5\\
\mathbf{854} &:= (5!+2!)\times(1!+3!) && = 5^3+(2^2-1^1)\times 3^5\\
\mathbf{863} &:= (4!+5!)\times 3!-1! && = -4^1+5^4+3^5-1^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{864} &:= 1!\times 3!\times 4!+6! && = (-1^6+3^4+4^3)\times 6^1\\
&:= (1!\times 4!+5!)\times 3! && = -1^3\times 4^1+5^4+3^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{865} &:= 1!+3!\times(4!+5!) && = 1^3+3^5-4^1+5^4\\
\mathbf{876} &:= (5!+4!+2!)\times 3! && = 5^4+4^2-2^3+3^5\\
\mathbf{936} &:= (2!+3!)\times 5!-4! && = 2^2+3^5+5^4+4^3\\
\mathbf{952} &:= (2!+3!)\times(5!-1!) && = 2^2\times(3^5-5^1)\times 1^3
\end{aligned}$$

$$\begin{aligned}
\mathbf{960} &:= 1!\times 6!+5!\times 2! && = (-1^6+6^1+5^2)\times 2^5\\
& && = (-1^6+6^2-5^1)\times 2^5
\end{aligned}$$

$$\begin{aligned}
\mathbf{961} &:= 1!+2!\times 5!+6! && = (1^6-2^5)\times(5^1-6^2)\\
& && = (-1^6+2^5)\times(5^2+6^1)
\end{aligned}$$

$$\begin{aligned}
\mathbf{968} &:= (2!+3!)\times(1!+5!) && = 2^2\times 3^5+1^3-5^1\\
& && = -2^5+(3^2-1^1)\times 5^3
\end{aligned}$$

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$$
\begin{aligned}
\mathbf{984} &:= (2! + 3!) \times 5! + 4! && = 2^2 + 3^4 - 5^3 + 4^5 \\
\mathbf{1200} &:= 2! \times (3! - 1!) \times 5! && = (-2^2 + 3^5 + 1^3) \times 5^1 \\
\mathbf{1296} &:= 2! \times 6! - 3! \times 4! && = -2^3 \times 6^4 + 3^6 \times 4^2 \\
\\
\mathbf{1392} &:= (3! \times 5! - 4!) \times 2! && = 3^5 + 5^3 + 4^4 \times 2^2 \\
&:= 2! \times (3! \times 5! - 4!) && = 2^5 \times (-3^4 + 5^3) - 4^2 \\
\\
\mathbf{1434} &:= (-1! + 5! \times 2!) \times 3! && = (1^3 + 5^1) \times (-2^2 + 3^5) \\
\mathbf{1439} &:= 2! \times 3! \times 5! - 1! && = 2^5 \times 3^2 \times 5^1 - 1^3 \\
\mathbf{1440} &:= 4! \times 5! - 2! \times 6! && = -4^4 \times 5^2 + 2^6 + 6^5 \\
\mathbf{1464} &:= 2! \times 3! \times 5! + 4! && = 2^2 \times (-3^5 + 5^4) - 4^3 \\
\mathbf{1466} &:= 4! + (1! + 6!) \times 2! && = (4^4 - 1^2) \times 6^1 - 2^6 \\
\\
\mathbf{1488} &:= 2! \times (3! \times 5! + 4!) && = 2^3 \times (3^5 - 5^2) - 4^4 \\
& && = 2^2 \times (-3^3 - 5^4 + 4^5) \\
&:= 2! \times (4! \times 1! + 6!) && = 2^6 \times (4^1 - 1^2) + 6^4 \\
\\
\mathbf{1584} &:= 3! \times (5! \times 2! + 4!) && = (3^3 + 5^4) \times 2^2 - 4^5 \\
\mathbf{1680} &:= (1! \times 5! + 6!) \times 2! && = (-1^5 + 5^2) \times (6^1 + 2^6) \\
\mathbf{1728} &:= 2! \times (3! \times 4! + 6!) && = 2^6 \times 3^4 - 4^2 \times 6^3 \\
\mathbf{1920} &:= (-2! - 3! + 4!) \times 5! && = 2^5 \times (-3^4 + 4^2 + 5^3) \\
\\
\mathbf{2160} &:= (3! - 1! - 2!) \times 6! && = (-3^1 - 1^3 + 2^6) \times 6^2 \\
& && = (3^2 - 1^6 + 2^1) \times 6^3 \\
\\
\mathbf{2208} &:= (2! + 5!) \times 4! - 6! && = (2^6 - 5^2) \times 4^4 - 6^5 \\
\mathbf{2400} &:= (4! + 2! - 3!) \times 5! && = 4^4 + 2^3 \times (3^5 + 5^2) \\
\mathbf{2520} &:= 5! \times (4! - 1! - 2!) && = (5^4 + 4^1 + 1^5) \times 2^2 \\
\mathbf{2640} &:= (-1! \times 2! + 4!) \times 5! && = (1^4 + 2^5) \times 4^2 \times 5^1 \\
\mathbf{2784} &:= (2! - 3! + 5!) \times 4! && = (-2^5 + 3^4 + 5^3) \times 4^2 \\
\mathbf{2868} &:= 4! \times 5! - 2! \times 3! && = -4^4 + 5^5 + 2^3 - 3^2 \\
\mathbf{2873} &:= 4! \times 5! - 1! - 3! && = -4^4 + 5^5 + 1^3 + 3^1 \\
\mathbf{2880} &:= (-2! + 3!) \times 1! \times 6! && = 2^6 \times 3^2 \times (-1^3 + 6^1) \\
\mathbf{2892} &:= 2! \times 3! + 4! \times 5! && = -2^2 + 3^3 - 4^4 + 5^5 \\
\mathbf{2898} &:= (-1! + 4!) \times (3! + 5!) && = -1^3 + 4^5 + 3^1 \times 5^4 \\
\mathbf{2976} &:= 4! \times (3! - 2! + 5!) && = -4^3 - 3^4 - 2^2 + 5^5 \\
\mathbf{2994} &:= 5! \times (1! + 4!) - 3! && = (5^1 + 1^3) \times (4^4 + 3^5)
\end{aligned}
$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$\begin{aligned}
\mathbf{3048} &:= (1!+3!+5!)\times 4! && = -1^3\times 3^4+5^5+4^1\\
\mathbf{3072} &:= (2!+3!+5!)\times 4! && = 2^3\times(-3^5+5^4)+4^2\\
\\
\mathbf{3094} &:= (2!+4!)\times(5!-1!) && = -2^1\times 4^2+5^5+1^4\\
&&& = -2^4-4^2+5^5+1^1\\
\\
\mathbf{3360} &:= 6!+5!\times(4!-2!) && = -6^6+5^5\times 4^2+2^4\\
\mathbf{3840} &:= (2!+3!+4!)\times 5! && = 2^5\times(3^4+4^3-5^2)\\
\mathbf{4170} &:= (-1!-4!+6!)\times 3! && = -1^3+4^6-6^1+3^4\\
\mathbf{4182} &:= (1!-4!+6!)\times 3! && = -1^3+4^6+6^1+3^4\\
\\
\mathbf{4320} &:= (2!-1!)\times 3!\times 6! && = (-2^3-1^2+3^6)\times 6^1\\
&&& = 2^1\times(1^6+3^2)\times 6^3\\
&:= (2!-1!)\times 7!-6! && = (2^7-1^6-7^1)\times 6^2\\
\\
\mathbf{4326} &:= 3!\times(2!-1!+6!) && = (3^6-2^3)\times 1^2\times 6^1\\
\mathbf{4332} &:= 1!\times 3!\times(2!+6!) && = (1^2+3^6-2^3)\times 6^1\\
\mathbf{4608} &:= 3!\times(4!\times 2!+6!) && = 3^3\times 4^4-2^6\times 6^2\\
\mathbf{4800} &:= 1!\times 7!-2!\times 5! && = (-1^7+7^1)\times 2^5\times 5^2\\
\mathbf{5050} &:= 2!\times(3!-1!)+7! && = (2^7-3^3)\times(1^1+7^2)\\
\mathbf{5058} &:= (2!+1!)\times 3!+7! && = 2^1\times(-1^2+3^7+7^3)\\
\mathbf{5136} &:= 7!+(3!-2!)\times 4! && = (7^4-3^7)\times(2^3+4^2)\\
\mathbf{5178} &:= 3!\times(4!-1!)+7! && = 3^4\times 4^3+1^7-7^1\\
\mathbf{5190} &:= (1!+4!)\times 3!+7! && = -1^7+4^3\times 3^4+7^1\\
\mathbf{5736} &:= (2!\times 5!-1!)\times 4! && = 2^1\times(5^5-1^2-4^4)\\
\mathbf{7800} &:= 5!\times(4!-1!)+7! && = 5^4+(4^5+1^7)\times 7^1\\
\mathbf{8640} &:= 1!\times 6!\times 2!\times 3! && = (-1^2+6^1)\times 2^6\times 3^3\\
\mathbf{11520} &:= (4!-3!-2!)\times 6! && = -4^4\times 3^2+2^6\times 6^3\\
\mathbf{12960} &:= (1!+2!)\times 3!\times 6! && = (-1^2+2^6-3^1)\times 6^3\\
\mathbf{13800} &:= (4!-1!)\times(-5!+6!) && = 4^1\times(1^6+5^5)+6^4\\
\mathbf{15840} &:= 2!\times(4!\times 5!+7!) && = 2^5+4^7-5^4+7^2\\
\mathbf{17160} &:= 1!\times 4!\times 6!-5! && = -1^5+4^4\times 6^1+5^6\\
\mathbf{17161} &:= 1!-5!+4!\times 6! && = 1^5\times 5^6+4^4\times 6^1\\
\mathbf{17274} &:= (4!\times 5!-1!)\times 3! && = 4^5-5^4\times(1^1-3^3)\\
\\
\mathbf{19440} &:= (1!+2!+4!)\times 6! && = (1^6-2^1+4^2)\times 6^4\\
&&& = (-1^6+2^2\times 4^1)\times 6^4
\end{aligned}$$

Same Digits Equality Expressions, **Zenodo**, Feb. 20, 2019, pp. 1-115,
http://doi.org/10.5281/zenodo.2573569

$$
\begin{aligned}
\mathbf{20160} &:= (4! - 2! + 3!) \times 6! && = (4^4 + 2^6) \times (3^3 + 6^2) \\
\mathbf{23040} &:= (2! + 3! + 4!) \times 6! && = 2^6 \times 3^2 \times (4^4 - 6^3) \\
\mathbf{25920} &:= (2! \times 3! + 4!) \times 6! && = -2^2 \times 3^4 \times 4^3 + 6^6 \\
\mathbf{29952} &:= 3! \times (7! - 4! \times 2!) && = (3^3 - 7^2 + 4^4) \times 2^7 \\
\mathbf{30240} &:= (2! \times 4! - 3!) \times 6! && = (2^4 + 4^2) \times (3^6 + 6^3) \\
\mathbf{37440} &:= 4! \times (5! + 2! \times 6!) && = 4^5 \times (-5^2 + 2^4) + 6^6 \\
\mathbf{43200} &:= 2! \times (4! + 3!) \times 6! && = (-2^6 + 4^4) \times (3^2 + 6^3) \\
\mathbf{46080} &:= 2! \times (8! - 4! \times 6!) && = -2^8 - 8^2 - 4^4 + 6^6 \\
\mathbf{48960} &:= 6! \times 3! \times 2! + 8! && = 6^6 - 3^2 \times (2^8 - 8^3) \\
\\
\mathbf{69120} &:= (-2! + 3!) \times 4! \times 6! && = (2^6 \times 3^2 - 4^4) \times 6^3 \\
& && = 2^6 \times (3^4 \times 4^2 - 6^3) \\
&:= (3! - 2!) \times 6! \times 4! && = 3^3 \times (2^6 \times 6^2 + 4^4) \\
\\
\mathbf{95040} &:= (4! - 2!) \times 6! \times 3! && = (4^6 - 2^4 \times 6^2) \times 3^3 \\
\\
\mathbf{131040} &:= (2! + 4!) \times 1! \times 7! && = (-2^2 + 4^7) \times (1^4 + 7^1) \\
\mathbf{138240} &:= (2! + 3!) \times 6! \times 4! && = 2^6 \times (-3^4 + 6^3) \times 4^2 \\
\mathbf{155520} &:= (2! \times 6! + 7!) \times 4! && = 2^7 \times (6^4 - 7^2) - 4^6 \\
\\
\mathbf{161280} &:= (4! + 2! + 3!) \times 7! && = 4^3 \times (2^7 - 3^2 + 7^4)
\end{aligned}
$$

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