Hardy-Ramanujan Number - 1729, **Zenodo**, December 22, 2021, pp. 1-106, http://doi.org/10.5281/zenodo.5799640

Hardy-Ramanujan Number - 1729[1]

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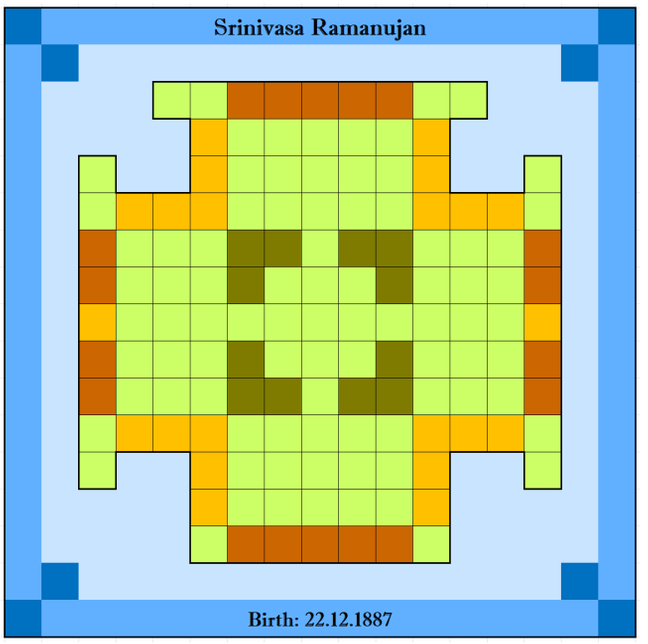
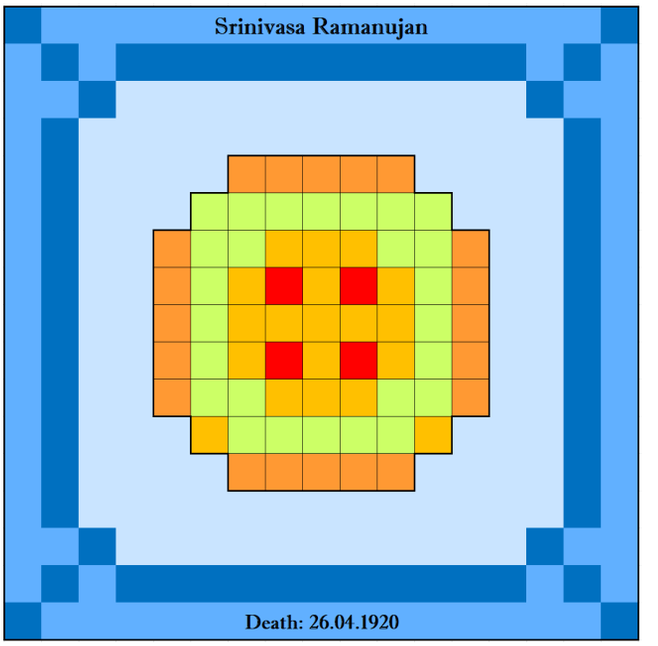
On a Special Day:
134th Birth Anniversary of S. Ramanujan
National Mathematics Day
(https://bit.ly/3yOMpl3)

December 22, 2021

22 December 1887-26 April 1920





An equation means nothing to me unless it expresses a thought of God.
- S. Ramanujan

[1] *It is revised and enlarged version of author's previous work written 2017 - https://bit.ly/3J9N4lZ*

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Abstract

*This paper brings representations of 1729, a famous **Hardy-Ramanujan number** in different situations. These representations are of crazy-type, single digit, single letter, Selfie-type, running expressions, selfie fractions, equivalent fractions, Triangular, Fibonacci, fixed digits repetitions prime numbers patterns , Pythagorean triples, palindromic-type, polygonal-type, prime numbers, embedded, repeated, etc. Ideas toward magic squares are also extended. Some quotes and historical notes on Ramanujan's life are also specified.*

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1 Quotes and Historical Notes

Another famous quote of Ramanujan on his dreams:

While asleep, I had an unusual experience. There was a red screen formed by flowing blood, as it were. I was observing it. Suddenly a hand began to write on the screen. I became all attention. That hand wrote a number of elliptic integrals. They stuck to my mind. As soon as I woke up, I committed them to writing.

S. Ramanujan

Confirmations to Ramanujan's dreams:

Ono and his colleagues (Emory University, Atlanta, GA, USA) drew on modern mathematical tools that had not been developed before Ramanujan's death to prove this theory was correct. We proved that Ramanujan was right. We've solved the problems from his last mysterious letters. For people who work in this area of math, the problem has been open for 90 years.

We found the formula explaining one of the visions that he believed came from his goddess - K. Ono

Read more at:

1. *https://www.dailymail.co.uk/sciencetech/article-2254352/Deathbed-dream-puzzles-renowned-Indian-mathematician-Srinivasa-finally-solved–100-years-died.html*
2. *http://www.livescience.com/25597-ramanujans-math-theories-proved.html.*
3. *https://www.quantamagazine.org/20160519-ken-ono-mathematician-inspired-by-ramanujan/*

Below are few more **quotes** on Ramanujan's work:

I had never seen anything in the least like them before. A single look at them is enough to show that they could only be written by a mathematician of the highest class. They must be true because, if they were not true, ***"no one would have the imagination to invent them"****. He also said, like other great men* ***"he invented himself"****.*
- G.H. Hardy

Every positive integer is one of Ramanujan's personal friends.
- J. Littlewood

I still don't understand it all. I may be able to prove it, but I don't know where it comes from and where it fits into the rest of mathematics.
- B.C. Berndt

The enigma of Ramanujan's creative process is still covered by a curtain that has barely been drawn. The Man Who Knew Infinity, 1991.
- R. Kanigel

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When we comprehend some of Ramanujan's equations, we realize that he was a true artist, expressing deep and beautiful mathematical truth in familiar symbols.
Mathematical Mysteries, 1996.
- C. Clawson

That was the wonderful thing about Ramanujan. He discovered so much, and yet he left so much more in his garden for other people to discover.
- F. Dyson

He discovered bizarre and strange set of modular mathematical functions which are out of this world ... Civilization has to wait another one hundred years to understand remotely Ramanujan's mind".
- K. Ono.

Read more quotes at

1. *https://www.famousscientists.org/srinivasa-ramanujan/.*
2. *http://quoteaddicts.com/author/srinivasa-ramanujan.*
3. *http://www.azquotes.com/quotes/topics/ramanujan.html*

The history of S. Ramanujan is well-known in the literature. There are so many sites on Internet relating about him. Below are some of them:

1. *http://www-groups.dcs.st-and.ac.uk/history/Biographies/Ramanujan.html.*
2. *https://en.wikipedia.org/wiki/Srinivasa-Ramanujan.*
3. *http://www.thebetterindia.com/52974/srinivasa-ramanujan-mathematician-biopic.*
4. *http://www.biography.com/people/srinivasa-ramanujan-082515.*
5. *http://www.livescience.com/25597-ramanujans-math-theories-proved.html.*

Besides from his excellent work on mathematics, the Taxicab number 1729 is famous due to his instantaneous combinations with minimum cubes done by him, such as

$$1729 := 1^3 + 12^3 = 9^3 + 10^3$$

Even though this number is famous as **"Hardy-Ramanujan number"**, historically it has been studied before in 1657 (Boyer, 2008).

1. *http://esciencecommons.blogspot.com.br/2015/10/mathematicians-find-magic-key-to-drive.html.*
2. *http://www.zmescience.com/science/math/taxi-number-ramanujan-03213.*
3. ***C. Boyer**, New upper bounds for Taxicab and Cabtaxi Numbers, J. Integer Sequences, **11**(2008), Art. 08.1.6, https://cs.uwaterloo.ca/journals/JIS/VOL11/Boyer/boyer-new.pdf.*

Ramanujan also worked on magic squares. One of his famous magic square is based on his date of birth. Below are some sites talking about his magic square:

1. *http://www.math.mcgill.ca/styan/Beamer3-18jan12-opt.pdf.*
2. *http://mathstimes.com/wp-content/uploads/2014/10/Birthday-magic-square.pdf.*
3. *http://slideplayer.com/slide/9142307/.*
4. *http://jollymaths.com/blog/srinivasa-ramanujan-16x16-biography-magic-square/*

Ramanujan's whole work is composed as **"Notebooks"**. See the following links:

1. ***B. C. Berndt**, Ramanujan's Notebooks, Parts I-V. Springer-Verlag, New York, 1985, 1989, 1991, 1994, 1998.*
2. ***G. E. Andrews** and **B. C. Berndt**, Ramanujan's Lost Notebook, Part I-IV, Springer, New York, 2005, 2009, 2012, 2013.*

Some of his work and biography can be seen in following books:

1. **C.C. Clawson** *Mathematical Mysteries - The Beauty and Magic of Numbers. Springer, New York, 1996.*
2. **R. Kanigel** *The Man Who Knew Infinity: A Life of the Genius Ramanujan, Washington Square Press, New York, 1991*
3. **C.A. Pickover**, *A Passion for Mathematics, John Wiley & Sons, New Jersey, 2005.*
4. **K. Ono** and **A. D. Aczel**, *My Search for Ramanujan - How I Learned to Count, Springer, New York, 2016.*

The aim of this work is to present different representations of **Hardy-Ramanujan number 1729**. Also to present new types of magic squares with more details of his biography with the presence of number **1729**.

2 Magic Squares with 1729

This section deals with the magic squares of order 4 and 5 are made in such a way that they brings more details of life of Ramanujan.

2.1 Magic Square of Order 4

Ramanujan himself constructed a magic square of order 4 containing details of his date of birth, i.e., 22.12.1887. Below is his classical magic square

				139
22	**12**	**18**	**87**	*139*
88	17	9	25	*139*
10	24	89	16	*139*
19	86	23	11	*139*
139	*139*	*139*	*139*	*139*

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Ramanujan's Magic Square
Figure 1

The magic sum $S := 139$ is a prime number:

$$22 + 12 + 18 + 87 = 139$$

The above magic square (Figure 1) constructed by Ramanujan brings only his date of birth. Below is modified version of above magic square where we brought *Hardy-Ramanujan number* 1729:

				139
22	**12**	**18**	**87**	*139*
88	**17**	**29**	5	*139*
20	14	79	26	*139*
9	96	13	21	*139*
139	*139*	*139*	*139*	*139*

Figure 2

Interestingly, if we sum the numbers with his date of death (26.04.1920) in little different way, i.e., considering sum four in four instead two and two digits, we get much more options to put in a magic square. See below

$$2212 + 1887 + 2604 + 1920 = 8623$$

Again we have a prime number. Below is a magic square with followings details of **Ramanujan**:

Date of Birth : 22.12.1887
Date of Death : 26.04.1920
Servived from Smallpox : 1889
Got Job at Madras Port Trust : 1912
Year of Entering England : 1914
Fellow Royal Society, London : 1918
Hardy-Ramanujan Number : 1729.

				8623
2212	**1887**	**2604**	**1920**	*8623*
1914	2610	**1729**	2370	*8623*
1918	2395	**1889**	2421	*8623*
2579	1731	2401	**1912**	*8623*
8623	*8623*	*8623*	*8623*	*8623*

Figure 3

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We observe that the above magic squares (Figure 1, Figure 2 and Figure 3) are not *pan diagonal*. In all the examples above the magic sum is prime, i.e., odd numbers. It is impossible to construct pan diagonal magic square of order 4 for odd number magic square sum. If we want pan diagonal magic square of order 4 with some Ramanujan's details, we have to make little change, i.e., to consider magic sum as even number. See below:

Date of Birth : 22.12.1887
Date of Death : 26.04.1920
Hardy-Ramanujan Number : 1729.

		8432	*8432*	*8432*	*8432*
	2212	**1887**	**1729**	**2604**	*8432*
8432	1696	2637	2179	**1920**	*8432*
8432	2487	1612	2004	2329	*8432*
8432	2037	2296	2520	1579	*8432*
	8432	*8432*	*8432*	*8432*	*8432*

Figure 4

In this case the magic sum, $S = 8432$ is not a prime number, but the magic square is pan diagonal. Coincidentally, the number 8432 divided in two by two i.e, 84 and 32 give 84-gonal 7th value is 1729, i.e., $P_{84}(7) := 1729$ and 32 the age Ramanujan died. According to Hindu philosophy *"The number 84 is a "whole" or "perfect" number. Thus the eighty-four siddhas can be seen as archetypes representing the thousands of exemplars and adept of the tantric way"*

http://keithdowman.net/essays/introduction-mahasiddhas-and-tantra.html

2.2 Magic Squares of Order 5

The magic square appearing in Figure 4 contains less details as being pan diagonal. Still, we can make pan diagonal magic square of order 5 with more details. See below:

Date of Birth : 22.12.1887
Date of Death : 26.04.1920
Age at the time of Death : 32
Got Job at Madrs Port Trust : 1912
Year of Entering England : 1914
Fellow Royal Society, London : 1918
Hardy-Ramanujan Number : 1729.

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		8655	*8655*	*8655*	*8655*	*8655*
	2212	**1887**	**32**	**2604**	**1920**	*8655*
8655	1754	**1914**	3062	**1918**	7	*8655*
8655	2768	38	**1729**	1064	3056	*8655*
8655	1039	2206	2762	888	1760	*8655*
8655	882	2610	1070	2181	**1912**	*8655*
	8655	*8655*	*8655*	*8655*	*8655*	*8655*

Figure 5

Since our work is more concentrated towards number 1729. Below is another pan diagonal magic square of order 5 with sum $5 \times 1729 = 8645$ with similar details as of Figure 5.

Date of Birth : 22.12.1887
Date of Death : 26.04.1920
Worked on Mathematics : 22 years
Age at the time of Death : 32 years
Most Struggling Year : 1908
Year of Entering England : 1914
Fellow Royal Society, London : 1918
Hardy-Ramanujan Number : 1729
Magic Sum : $8645 = 5 \times 1729$.

		5×1729	5×1729	5×1729	5×1729	5×1729
	2212	**1887**	**22**	**2604**	**1920**	5×1729
5×1729	1750	**1914**	3062	**1918**	1	5×1729
5×1729	2768	**32**	**1729**	1060	3056	5×1729
5×1729	1039	2202	2762	882	1760	5×1729
5×1729	876	2610	1070	2181	**1908**	5×1729
	5×1729	5×1729	5×1729	5×1729	5×1729	5×1729

Figure 6

It is interesting to observe that the number "22" appearing in the middle of first line is the span period of time Ramanujan worked on mathematics. Also it is famous that Professor Bruce C. Berndt (University of Illinois at Urbana-Champaign, Illinois, USA) spent about 22 years to solve 3254 problems from Ramanujan's notebooks (*http://ramanujans.blogspot.com.br/*). Another number appearing in magic square is 1908. As compared to other years, this year don't brings any this special to Ramanujan's life. His marriage happened in 1909. On the other hand, according to the book "**R. Kanigel** *The Man Who Knew Infinity: A Life of the Genius Ramanujan, Washington Square Press, New York, 1991*", on page 55, it is written that year 1908 was very difficult for him as he was, *out of school, without job, without food, etc.*

The approach applied to construct above four squares is different from the one used by Ramanujan (The Notebooks of Ramanujan, Tata Institute of Fundamental Research, Bombay, 1957).

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3 Single Digit Representations

Below are representations of the number **1729** written in terms of each digit separately using 1 to 9. Even though it can be written using 0 but it requires use of factorials.

$$\begin{aligned}
\mathbf{1729} &:= (11+1)^{1+1+1}+1\\
&:= (2/2+2)\times(22+2)^2+2/2\\
&:= (3\times 3+3)^3+3/3\\
&:= 4\times(4\times 44+4^4)+4/4\\
&:= 55\times(5\times 5-5)+(5^5-5)/5+5\\
&:= 6\times 6\times(6\times 6+6+6)+6/6\\
&:= 7\times 7\times(7\times 7-7-7)+7+7\\
&:= 8\times(8\times(8+8)+88)+8/8\\
&:= 9\times 9\times 9+999+9/9.
\end{aligned}$$

3.1 Patterns in Single Digit

Below are few patterns based on the above representations:

$$\mathbf{1729} := 55\times(5\times 5-5)+5+\frac{5^5-5}{5}$$
$$\mathbf{11729} := 555\times(5\times 5-5)+5+\frac{5^5-5}{5}$$
$$\mathbf{111729} := 5555\times(5\times 5-5)+5+\frac{5^5-5}{5}$$
$$\mathbf{1111729} := 55555\times(5\times 5-5)+5+\frac{5^5-5}{5}$$

$$\mathbf{1729} := 9\times 9\times 9+999+\frac{9}{9}$$
$$\mathbf{10729} := 9\times 9\times 9+9999+\frac{9}{9}$$
$$\mathbf{100729} := 9\times 9\times 9+99999+\frac{9}{9}$$
$$\mathbf{1000729} := 9\times 9\times 9+999999+\frac{9}{9}$$

The above two patterns are not uniform. In order to get uniform pattern for all digits, we can replace single letter **a** given in next section by 1 to 9.

4 Single Letter Representation

In Section 3 the number **1729** is written in terms of each digit separately. Instead using each digit seperately as of Section 3 , one can write this number using single letter "a". It remains true for any value of a from 1 to 9.

$$\mathbf{1729} := \frac{(aaa+aa+aa)\times(aa+a+a)}{a\times a}.$$

$$\begin{aligned}
&\text{where, } aaa = a10^2+a10+a,\\
&\qquad aa = a10+a,\ a\in\{1,2,3,4,5,6,7,8,9\}.
\end{aligned}$$

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4.1 Patterns in Single Letter

Below is a different for 1729 written in single letter **a**:

$$\begin{aligned}
\mathbf{1729} &:= \frac{(aaa+aa+aa)\times(aa+a+a)}{a\times a}\\
\mathbf{14729} &:= \frac{(aaaa+aa+aa)\times(aa+a+a)}{a\times a}\\
\mathbf{144729} &:= \frac{(aaaaa+aa+aa)\times(aa+a+a)}{a\times a}\\
\mathbf{1444729} &:= \frac{(aaaaaa+aa+aa)\times(aa+a+a)}{a\times a}
\end{aligned}$$

where, $aaaaa := a10^4+a10^3+a10^2+a10+a$, $aaaa := a10^3+a10^2+a10+a$,
$aaa := a10^2+a10+a$, $aa := a10+a$, etc.
$a \in \{1,2,3,4,5,6,7,8,9\}$.

5 Crazy Representations

5.1 Increasing and Decreasing

The number **1729** is written in terms of 1 to 5, 6, 7, 8 and 9 and reverse.

$$\begin{aligned}
\mathbf{1729} &:= 12^3-4+5 && = 54\times 32+1\\
&:= 12^3+(-4+5)^6 && = 6\times(5+4)\times 32+1\\
&:= 123\times(4\times 5-6)+7 && = (7-6)\times(54\times 32+1)\\
&:= -1+(2+34+5)\times 6\times 7+8 && = 8-7+6\times(5+4)\times 32\times 1\\
&:= 12-3+4^5-6+78\times 9 && = (98-7)\times(6\times 5-4\times 3+2-1).
\end{aligned}$$

5.2 Ending in Zero

The number **1729** is written with ending in 0, starting with 5, 6, 7, 8 and 9.

$$\begin{aligned}
\mathbf{1729} &:= (4\times 3)^{2+1}+0!\\
&:= 54\times 32+1\times 0!\\
&:= 6!-5-4-3!+2^{10}\\
&:= (7+6)\times(-5-4!\times 3+210)\\
&:= 8-7+(6+5)\times 4^3+2^{10}\\
&:= 9+8\times(7\times 6\times 5-4-3+2+10).
\end{aligned}$$

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5.3 Numbers from 1 to 10 and Reverse

Instead using 1 to 9 or 9 to 1, here the numbers 1 to 10 are used in both ways, i.e., increasing and decreasing.

$$\begin{aligned}\mathbf{1729} &:= 10\times(98+7+65+\sqrt{4})+3^2\times 1\\ &:= 1+2^3+(-4+56+((7+8)/\sqrt{9})!)\times 10.\end{aligned}$$

6 Powers and Bases: Same Digits

This section deals with the representations of **1729** in such a way that the powers and based are with same set of digits. Initially in sequential way starting with 0 and 1. The non sequential representation is also given.

6.1 Sequential: Starting With 0

$$\begin{aligned}\mathbf{1729} &:= 0^3+1^0+2^6+3^2+4^5+5^4+6^1\\ &:= 0^4+1^7+2^9-3^8+4^6+5^5+6^2+7^1+8^3+9^0.\end{aligned}$$

6.2 Sequential: Starting With 1

$$\begin{aligned}\mathbf{1729} &:= 1^3+2^6+3^2+4^5+5^4+6^1\\ &:= 1^5+2^8+3^9+4^4+5^1-6^7+7^2+8^6-9^3.\end{aligned}$$

6.3 Non Sequential

$$\begin{aligned}\mathbf{1729} &:= 1^1+2^7+4^5+5^4-7^2\\ &:= 1^9-2^1+4^5+5^4+9^2.\end{aligned}$$

6.4 Power Patterns

Based on the idea of same set of digits in powers and bases, seperated by addition and subtraction, below are some patterns containing the number **1729**.

$$\begin{aligned}\mathbf{1729}\times 10+0 &:= -1^7+2^6+3^1+4^4+5^3+6^2+7^5\\ \mathbf{1729}\times 10+2 &:= 1^7+2^6+3^1+4^4+5^3+6^2+7^5\\ \mathbf{1729}\times 10+4 &:= 1^7+2^6+3^2+4^1+5^4-6^3+7^5\\ \mathbf{1729}\times 10+6 &:= -1^5+2^4+3^6+4^7+5^3+6^2+7^1\\ \mathbf{1729}\times 10+8 &:= 1^5+2^4+3^6+4^7+5^3+6^2+7^1.\end{aligned}$$

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$$\begin{aligned}
\mathbf{1729}\times 10+0 &:= 1^7+2^8-3^3-4^5+5^6-6^1+7^4+8^2\\
\mathbf{1729}\times 10+2 &:= 1^8+2^6+3^2-4^7+5^4+6^3-7^1+8^5\\
\mathbf{1729}\times 10+4 &:= 1^3+2^4+3^2+4^8-5^7+6^6-7^5+8^1\\
\mathbf{1729}\times 10+6 &:= 1^6+2^8-3^5+4^7+5^4+6^3+7^2+8^1\\
\mathbf{1729}\times 10+8 &:= 1^8+2^4+3^6-4^7+5^3+6^2+7^1+8^5.
\end{aligned}$$

7 Same Digits Both Sides

This section deals with the representations of **1729** in such way the we have almost same digits on both sides of the expressions. These representations are given in different situations.

7.1 Selfie-Type

$$\begin{aligned}
\mathbf{1729}665 &:= 17^2\times 9\times 665\\
494\mathbf{1729} &:= (494+\mathbf{1729})^2.
\end{aligned}$$

In the second case, we have power 2 extra. More study of this kind is given in Section 24 along with Fibonacci and Triangular sequence values.

7.2 Multiplication

The representations below are in such a way that we have same digits with each multiplicative factor on both sides.

$$\begin{aligned}
\mathbf{1729}\times 3584 &= 1792\times 3458\\
\mathbf{1729}\times 3854 &= 1927\times 3458\\
\mathbf{1729}\times 4358 &= 2179\times 3458\\
\mathbf{1729}\times 4732 &= 2197\times 3724\\
\mathbf{1729}\times 5438 &= 2719\times 3458\\
\mathbf{1729}\times 5781 &= 1927\times 5187.
\end{aligned}$$

7.3 Power Plus

The representations below are in such a way that we have same digits on sides, where the one there the digits are as a power.

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

Hardy-Ramanujan Number - 1729, **Zenodo**, December 22, 2021, pp. 1-106, *http://doi.org/10.5281/zenodo.5799640*

$$\begin{aligned}
\mathbf{1729} &:= 3^5+3^5+3^6+4^0+8^3+150^0 = 35+35+36+40+83+1500\\
&:= 2^4+2^4+3^5+6^4+8^1+150^1 = 24+24+35+64+81+1501\\
&:= 2^4+2^8+3^1+6^4+8^1+150^1 = 24+28+31+64+81+1501\\
&:= 2^4+2^8+4^1+6^4+7^1+150^1 = 24+28+41+64+71+1501\\
&:= 2^4+2^8+5^1+6^1+6^4+150^1 = 24+28+51+61+64+1501\\
&:= 3^4+3^5+5^1+5^4+5^4+150^1 = 34+35+51+54+54+1501.
\end{aligned}$$

$$\begin{aligned}
\mathbf{1729} &:= 1^0+2^3+4^3+4^4+5^4+5^4+150^1 = 10+23+43+44+54+54+1501\\
&:= 1^0+2^9+4^2+4^5+5^0+5^2+150^1 = 10+29+42+45+50+52+1501\\
&:= 1^0+3^4+3^5+4^1+5^4+5^4+150^1 = 10+34+35+41+54+54+1501\\
&:= 1^1+2^9+3^0+4^5+5^1+6^2+150^1 = 11+29+30+45+51+62+1501\\
&:= 1^8+2^4+2^9+4^5+5^2+6^0+150^1 = 18+24+29+45+52+60+1501\\
&:= 1^8+2^9+2^9+2^9+6^1+6^2+150^1 = 18+29+29+29+61+62+1501\\
&:= 2^0+2^9+4^0+4^2+4^5+5^2+150^1 = 20+29+40+42+45+52+1501\\
&:= 2^1+2^9+3^0+4^1+4^5+6^2+150^1 = 21+29+30+41+45+62+1501\\
&:= 2^5+2^6+2^7+3^6+5^4+6^0+150^1 = 25+26+27+36+54+60+1501\\
&:= 2^9+3^0+3^0+4^2+4^5+5^2+150^1 = 29+30+30+42+45+52+1501\\
&:= 2^9+3^0+3^1+3^1+4^5+6^2+150^1 = 29+30+31+31+45+62+1501.
\end{aligned}$$

$$\begin{aligned}
\mathbf{1729} &:= 1^0+2^8+2^9+3^6+4^0+4^2+4^3+150^1 := 10+28+29+36+40+42+43+1501\\
&:= 1^1+2^6+2^9+3^6+4^0+4^2+4^4+150^1 := 11+26+29+36+40+42+44+1501\\
&:= 1^2+2^4+2^9+3^6+4^0+4^3+4^4+150^1 := 12+24+29+36+40+43+44+1501\\
&:= 1^4+2^0+2^9+3^6+4^2+4^3+4^4+150^1 := 14+20+29+36+42+43+44+1501\\
&:= 1^4+2^5+2^8+3^2+4^0+4^4+4^5+150^1 := 14+25+28+32+40+44+45+1501\\
&:= 1^4+2^8+3^3+3^3+3^5+4^0+4^5+150^1 := 14+28+33+33+35+40+45+1501\\
&:= 1^5+1^9+2^9+3^6+4^2+4^3+4^4+150^1 := 15+19+29+36+42+43+44+1501.
\end{aligned}$$

There are much more representations of this kind, but only few are written.

7.4 Factorial-Power

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

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

8 Narcissistic-Type Representation

Narcissistic numbers are famous in the literature, when there are same digits on both sides with fixed power and operations of addition. Below is a representation of **1729** in terms division with flexible power instead of fixed.

$$\mathbf{1729} := \frac{1^0 + 7^0 + 2^{15} + 9^2}{1 + 7 + 2 + 9}.$$

9 Power Representations

As explained in Introduction, the idea of power representation of **1729** is given by Ramanujan. Here there are much more possibilities of wring this number as powers of 2 and 3.

9.1 Power 2

$$
\begin{aligned}
\mathbf{1729} &:= 6^2 + 18^2 + 37^2 \\
&:= 8^2 + 12^2 + 39^2 \\
&:= 8^2 + 24^2 + 33^2 \\
&:= 10^2 + 27^2 + 30^2 \\
&:= 12^2 + 17^2 + 36^2 \\
&:= 18^2 + 26^2 + 27^2.
\end{aligned}
$$

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9.2 Power 3

$$\begin{aligned}\mathbf{1729} &:= 1^3+12^3\\ &:= 9^3+10^3\\ &:= 1^3+6^3+8^3+10^3\\ &:= 1^3+3^3+4^3+5^3+8^3+10^3.\end{aligned}$$

9.3 Power 3 Multiplication

This subsection give product decomposition of **1729** using power 3.

$$\begin{aligned}\mathbf{1729} &:= (6^3-5^3)\times(3^3-2^3)\\ &:= (4^3+3^3)\times(3^3-2^3).\end{aligned}$$

10 Patterns with 1729: Power 3

The idea of power representation of **1729** given in Section 9 is extended here to give some patterns with number **1729**.

10.1 First Pattern

$$\begin{aligned}\mathbf{1729}\times 10+0 &:= 13^3+18^3+21^3\\ \mathbf{1729}\times 10+1 &:= 1^3+13^3+18^3+21^3\\ \mathbf{1729}\times 10+2 &:= 2^3+7^3+13^3+16^3+22^3\\ &:= 7^3+9^3+13^3+15^3+22^3\\ \mathbf{1729}\times 10+3 &:= 1^3+2^3+7^3+13^3+16^3+22^3\\ &:= 1^3+7^3+9^3+13^3+15^3+22^3\\ \mathbf{1729}\times 10+4 &:= 5^3+8^3+10^3+14^3+17^3+20^3\\ \mathbf{1729}\times 10+5 &:= 5^3+9^3+11^3+13^3+17^3+20^3\\ \mathbf{1729}\times 10+6 &:= 6^3+17^3+23^3\\ \mathbf{1729}\times 10+7 &:= 9^3+14^3+24^3\\ \mathbf{1729}\times 10+8 &:= 1^3+9^3+14^3+24^3\\ &:= 2^3+13^3+18^3+21^3\\ \mathbf{1729}\times 10+9 &:= 7^3+11^3+25^3,\end{aligned}$$

The last two numbers can also be written as power 4:

$$\begin{aligned}\mathbf{1729}\times 10+8 &:= 4^4+7^4+11^4\\ \mathbf{1729}\times 10+9 &:= 1^4+4^4+7^4+11^4.\end{aligned}$$

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10.2 Second Pattern

$$
\begin{aligned}
10000+\mathbf{1729} &:= 1^3+2^3+7^3+9^3+22^3\\
&:= 6^3+9^3+12^3+13^3+19^3\\
20000+\mathbf{1729} &:= 1^3+5^3+16^3+19^3+22^3\\
&:= 1^3+10^3+12^3+15^3+25^3\\
&:= 4^3+6^3+12^3+16^3+25^3\\
&:= 7^3+13^3+16^3+18^3+21^3\\
30000+\mathbf{1729} &:= 1^3+10^3+13^3+16^3+19^3+26^3\\
&:= 3^3+4^3+10^3+16^3+19^3+27^3\\
&:= 6^3+10^3+13^3+18^3+19^3+25^3\\
40000+\mathbf{1729} &:= 2^3+5^3+15^3+18^3+20^3+29^3\\
&:= 2^3+8^3+11^3+13^3+17^3+32^3\\
&:= 8^3+9^3+17^3+18^3+23^3+26^3\\
50000+\mathbf{1729} &:= 5^3+9^3+20^3+35^3\\
&:= 14^3+17^3+27^3+29^3\\
60000+\mathbf{1729} &:= 6^3+12^3+17^3+38^3\\
&:= 6^3+20^3+26^3+33^3\\
70000+\mathbf{1729} &:= 4^3+14^3+41^3\\
80000+\mathbf{1729} &:= 10^3+12^3+17^3+42^3\\
90000+\mathbf{1729} &:= 9^3+30^3+40^3.
\end{aligned}
$$

The last two numbers can also be written as power 4:

$$
\begin{aligned}
80000+\mathbf{1729} &:= 4^4+6^4+11^4+16^4\\
90000+\mathbf{1729} &:= 4^4+6^4+10^4+11^4+16^4.
\end{aligned}
$$

11 Functional Representations

This deals with representations of **1729** in two different ways. One in terms of Fibonacci sequence values. Second as particular cases of *s-sides of polygons*.

11.1 Fibonacci Sequences

$$
F(0)=F(1)=1,\ F(n)=F(n-1)+F(n-2),\ n\geq 2,
$$
$$
0,1,1,2,3,5,8,13,..
$$

Then,

$$
\mathbf{1729} := F(2)+F(6)+F(9)+F(11)+F(17)
$$

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11.2 S-gonol Values

The general formula for **s-sides of a polygon** (**s-gonal**) is known as

$$P_s(n) := \frac{n(n-1)(s-2)}{2} + n, \;\; s > 2. \tag{1}$$

Below are particular cases:

$$\begin{aligned}
\textbf{Triangle (3-gonal):}\; P_3(n) = n(n+1)/2 &\rightarrow \mathbf{1729} := P_3(26) + P_3(52)\\
\textbf{Square (4-gonal):}\; P_4(n) = n^2 &\rightarrow \mathbf{1729} := P_4(6) + P_4(18) + P_4(37)\\
\textbf{Pentagonal (5-gonal):}\; P_5(n) = n(3n-1)/2 &\rightarrow \mathbf{1729} := P_5(3) + P_5(34)\\
\textbf{Hexagonal (6-gonal):}\; P_6(n) = n(2n-1) &\rightarrow \mathbf{1729} := P_6(9) + P_6(18) + P_6(22)\\
\textbf{Heptagonal (7-gonal):}\; P_7(n) = n(5n-3)/2 &\rightarrow \mathbf{1729} := P_7(9) + P_7(14) + P_7(21)\\
\textbf{Octagonal (8-gonal):}\; P_8(n) = n(3n-2) &\rightarrow \mathbf{1729} := P_8(4) + P_8(12) + P_8(21)\\
\textbf{Nonagonal (9-gonal):}\; P_9(n) = n(7n-5)/2 &\rightarrow \mathbf{1729} := P_9(1) + P_9(2) + P_9(15) + P_9(17)\\
\textbf{Decagonal (10-gonal):}\; P_{10}(n) = n(4n-3) &\rightarrow \mathbf{1729} := P_{10}(1) + P_{10}(3) + P_{10}(21)\\
\textbf{Hendecagonal (11-gonal):}\; P_{11}(n) = n(9n-7)/2 &\rightarrow \mathbf{1729} := P_{11}(1) + P_{11}(9) + P_{11}(18)
\end{aligned}$$

Calculating further values, the exact values are for 12-gonal, 24-gonal and 84-gonal. See below:

$$\begin{aligned}
\textbf{12-gonal:}\; P_{12}(n) = n(5n-4) &\rightarrow \mathbf{1729} := P_{12}(19)\\
\textbf{24-gonal:}\; P_{24}(n) = n(11n-10) &\rightarrow \mathbf{1729} := P_{24}(13)\\
\textbf{84-gonal:}\; P_{84}(n) = n(41n-40) &\rightarrow \mathbf{1729} := P_{84}(7).
\end{aligned}$$

Interestingly, 7, 13 and 19 are the *multiplicative factors* of **1729**.

In case of *decagonal (10-gonal)*, Ramanujan proved that

$$1^3 + 3^3 \times \frac{n-1}{n+1} + 5^3 \times \frac{(n-1)(n-2)}{(n+1)(n+2)} + 7^3 \times \frac{(n-1)(n-2)(n-3)}{(n+1)(n+2)(n+3)} + \ldots = n(4n-3).$$

https://oeis.org/A001107

11.3 Centered Polygonal Numbers

Below are representations of 1729 based on **centered polyon numbers**:

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$$\begin{aligned}
\mathbf{1729} &:= C_3(1) + C_3(2) + C_3(13) + C_3(32).\\
&:= C_4(1) + C_4(2) + C_4(3) + C_4(7) + C_4(29).\\
&:= C_5(1) + C_5(2) + C_5(14) + C_5(23).\\
&:= C_6(1) + C_6(2) + C_6(3) + C_6(4) + C_6(5) + C_6(9) + C_6(22).\\
&:= C_7(1) + C_7(2) + C_7(3) + C_7(4) + C_7(5) + C_7(9) + C_7(20).\\
&:= C_8(1) + C_8(2) + C_8(3) + C_8(4) + C_8(5) + C_8(6) + C_8(9) +\\
&\qquad + C_8(12) + C_8(13).\\
&:= C_{11}(7) + C_{11}(17).\\
&:= C_{14}(1) + C_{14}(2) + C_{14}(3) + C_{14}(5) + C_{14}(6) + C_{14}(8) + C_{14}(12).\\
&:= C_{15}(1) + C_{15}(2) + C_{15}(9) + C_{13}(13).
\end{aligned}$$

The **centered polygonal numbers** are defined as

$$C_k(n) := \frac{kn(n-1)}{2} + 1, \;\; k > 2$$

(*http://www.virtuescience.com/centered-polygonal.html*)

12 Special Value Numbers

12.1 Carmichael number

This section deals with the value of **1729** in different forms. These values are obtained in different situations with different kind of sequence values. All the values given here are already study previous by different authors as specified in each subsection.

Considering Carmichael (Charmick, 1939) numbers of the form

$$(6n+1)(12n+1)(18n+1)$$

where $6n+1$, $12n+1$ and $18n+1$ are primes, then

$$\mathbf{1729} := 7 \times 13 \times 19$$

J. Chernick (1939), On Fermat's simple theorem,
Bull. Amer. Math. Soc. ***45:*** *269-274*
https://oeis.org/A033502

Also, Carmichael numbers of the form

$$(6n+1)(12n+1)(18n+1)$$

are known as *Zeisel numbers.*

https://oeis.org/A051015.

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12.2 Centered cube number

Centered cube numbers are defined as

$$C(n) := n^3 + (n+1)^3 = (2n+1) \times (n^2+n+1),\ n \geq 0$$

This gives

$$\mathbf{1729} = C(9) := 9^3 + 10^3$$

https://oeis.org/A005898

12.3 Generalized Heptagonal (7-gonal)

Generalized heptagonal number is defined as

$$G_7(n) = n(5n-3)/2,\ n = 0, \pm 1, \pm 2, .$$

This gives

$$\mathbf{1729} := G_7(-6)$$

https://oeis.org/A085787

12.4 Third Spoke of a Hexagonal Spiral

Third spoke of a hexagonal spiral is defined as

$$M(n) := 3n^2 + 1,\ n = 0, 1, 2, .$$

This gives

$$\mathbf{1729} := M(24)$$

https://oeis.org/A056107

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13 Stair-Type Formula

This sections deals with triangular values written in such way that it brings sum in deslocating sequences after each two values, and then summing them. For all $n > 2, S(1) = 0, S(2) = 1$, we have

$$\begin{aligned} S(n) &:= S(n-2) + \frac{n(n-1)}{2} \\ &:= \frac{4n^3 + 6n^2 - 4n + 3(-1)^n - 3}{48} \end{aligned}$$

This gives

$$\mathbf{1729} := S(27)$$

The "*stair-type values*" are given by

1					1
3					3
6	1				7
10	3				13
15	6	1			22
21	10	3			34
28	15	6	1		50
36	21	10	3		70
45	28	15	6	1	95
...	...	...	...	...	...

https://oeis.org/A002623

This idea of *stair-type* numbers can be applied to other functions given in Section 11.2. This shell be dealt elsewhere.

14 Selfie-Fractions

Selfie numbers are understood as numbers having their representations with same digits or reverse with some operations. For examples,

$$\begin{aligned} 26364 &= 26^3 \times 6/4 \\ 34425 &= 3^4 \times 425 \\ 35721 &= 3^5 \times 7 \times 21. \end{aligned}$$

The above examples are with multiplication, division and exponential. There are lot of numbers this kind with more operations. See the reference at the end of this work. The same kind of idea can be applied to fractions, where then numerators and denominators are with same digits as of fractions separated by basic operations. Below are some examples containing the numbers **1729** either in numerator or in denominator.

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- $\frac{364}{\mathbf{1729}} = \frac{(3+6)\times 4}{(17+2)\times 9}$
- $\frac{546}{\mathbf{1729}} = \frac{(5+4)\times 6}{(17+2)\times 9}$
- $\frac{\mathbf{1729}}{4368} = \frac{1+7+2+9}{4+36+8}$
- $\frac{\mathbf{1729}}{8463} = \frac{1+7+2+9}{84+6+3}$
- $\frac{\mathbf{1729}}{6384} = \frac{1+7\times(2+9)}{(6+3)\times 8\times 4}$
- $\frac{\mathbf{1729}}{58604} = \frac{1+7+2+9}{5\times 8+604}$

14.1 Equivalent Selfie Fractions

Above we have written only one selife representation for each fraction, but there are many fraction those have more than one "selfie-representation". This we shall call as "equivalent selfie fraction. Below are some of these having the number **1729** in the numerator.

- $\frac{\mathbf{1729}}{3458} = \frac{17+29}{34+58} = \frac{17-29}{34-58} = \frac{17+2+9}{3+45+8} = \frac{1+7+2\times 9}{3\times 4+5\times 8}$
  $= \frac{17+2\times 9}{3\times 4+58} = \frac{1+7+29}{34+5\times 8} = \frac{1\times 7\times 29}{(3+4)\times 58} = \frac{1+7\times(2+9)}{3\times 4\times(5+8)}$
- $\frac{\mathbf{1729}}{3640} = \frac{(17+2)\times 9}{(3+6)\times 40} = \frac{1+7+2+9}{36+4+0}$
- $\frac{\mathbf{1729}}{5460} = \frac{(17+2)\times 9}{(5+4)\times 60} = \frac{1+7+2+9}{54+6+0}$
- $\frac{\mathbf{1729}}{8645} = \frac{1\times 7+2+9}{(8+6+4)\times 5} = \frac{1+7+2+9}{86+4+5} = \frac{1+7\times 2+9}{8\times(6+4+5)}$
  $= \frac{(1+7+2)\times 9}{(86+4)\times 5} = \frac{1\times 7\times 2\times 9}{(8+6)\times 45} = \frac{1^7\times 2^9}{8\times 64\times 5}$

15 Equivalent Fractions

Above Section give selfie fractions with the property that there are same digits at numerator and denominators. But there are fractions that are equivalent to each other without use of the basic operations such as $\frac{1}{2} = \frac{2}{4}$, $\frac{2}{3} = \frac{6}{9}$, etc. Below are some equivalent fractions with the digits **1729** in the numerator. Initially are few with triple representations and then with double representations.

15.1 Triple Representations

- $\frac{\mathbf{1729}}{38456} = \frac{3458}{76912} = \frac{4368}{97152}$
- $\frac{\mathbf{1729}}{45836} = \frac{1976}{52384} = \frac{3458}{91672}$

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- $\frac{1729}{53846} = \frac{1267}{39458} = \frac{2534}{78916}$
- $\frac{1729}{308465} = \frac{2639}{470815} = \frac{5278}{941630}$

15.2 Double Representations

- $\frac{1729}{34586} = \frac{3458}{69172}$
- $\frac{1729}{34856} = \frac{3458}{69712}$
- $\frac{1729}{35648} = \frac{3458}{71296}$
- $\frac{1729}{35846} = \frac{3458}{71692}$
- $\frac{1729}{36458} = \frac{3458}{72916}$
- $\frac{1729}{43586} = \frac{2457}{61938}$
- $\frac{1729}{45638} = \frac{3458}{91276}$
- $\frac{1729}{45863} = \frac{3458}{91726}$
- $\frac{1729}{46358} = \frac{3458}{92716}$
- $\frac{1729}{46835} = \frac{2639}{71485}$
- $\frac{1729}{48356} = \frac{3458}{96712}$
- $\frac{1729}{48563} = \frac{3458}{97126}$
- $\frac{1729}{304586} = \frac{3458}{609172}$
- $\frac{1729}{304856} = \frac{3458}{609712}$
- $\frac{1729}{305486} = \frac{3458}{610972}$
- $\frac{1729}{305864} = \frac{4921}{870536}$
- $\frac{1729}{306485} = \frac{3458}{612970}$
- $\frac{1729}{308546} = \frac{3458}{617092}$
- $\frac{1729}{308645} = \frac{3458}{617290}$
- $\frac{1729}{345086} = \frac{3458}{690172}$
- $\frac{1729}{346085} = \frac{3458}{692170}$
- $\frac{1729}{348506} = \frac{3458}{697012}$
- $\frac{1729}{348605} = \frac{3458}{697210}$
- $\frac{1729}{350648} = \frac{3458}{701296}$
- $\frac{1729}{350846} = \frac{3458}{701692}$
- $\frac{1729}{354608} = \frac{3458}{709216}$
- $\frac{1729}{354806} = \frac{3458}{709612}$
- $\frac{1729}{356048} = \frac{3458}{712096}$
- $\frac{1729}{358046} = \frac{3458}{716092}$
- $\frac{1729}{360458} = \frac{3458}{720916}$
- $\frac{1729}{360548} = \frac{3458}{721096}$
- $\frac{1729}{360845} = \frac{3458}{721690}$
- $\frac{1729}{364508} = \frac{3458}{729016}$
- $\frac{1729}{364805} = \frac{3458}{729610}$
- $\frac{1729}{380456} = \frac{3458}{760912}$
- $\frac{1729}{380546} = \frac{3458}{761092}$
- $\frac{1729}{380645} = \frac{3458}{761290}$
- $\frac{1729}{384506} = \frac{3458}{769012}$
- $\frac{1729}{384605} = \frac{3458}{769210}$
- $\frac{1729}{450638} = \frac{3458}{901276}$
- $\frac{1729}{450836} = \frac{3458}{901672}$
- $\frac{1729}{450863} = \frac{3458}{901726}$

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$\blacktriangleright \frac{1729}{453086} = \frac{3458}{906172}$ $\blacktriangleright \frac{1729}{460853} = \frac{3458}{921706}$ $\blacktriangleright \frac{1729}{485063} = \frac{3458}{970126}$

$\blacktriangleright \frac{1729}{453608} = \frac{3458}{907216}$ $\blacktriangleright \frac{1729}{463085} = \frac{3458}{926170}$ $\blacktriangleright \frac{1729}{485306} = \frac{3458}{970612}$

$\blacktriangleright \frac{1729}{453806} = \frac{3458}{907612}$ $\blacktriangleright \frac{1729}{463508} = \frac{3458}{927016}$ $\blacktriangleright \frac{1729}{485603} = \frac{3458}{971206}$

$\blacktriangleright \frac{1729}{456038} = \frac{3458}{912076}$ $\blacktriangleright \frac{1729}{463805} = \frac{3458}{927610}$ $\blacktriangleright \frac{1729}{486053} = \frac{3458}{972106}$

$\blacktriangleright \frac{1729}{458036} = \frac{3458}{916072}$ $\blacktriangleright \frac{1729}{480356} = \frac{3458}{960712}$ $\blacktriangleright \frac{1729}{486305} = \frac{3458}{972610}$

$\blacktriangleright \frac{1729}{458603} = \frac{3458}{917206}$ $\blacktriangleright \frac{1729}{480536} = \frac{3458}{961072}$ $\blacktriangleright \frac{1729}{540683} = \frac{1792}{560384}$

$\blacktriangleright \frac{1729}{460358} = \frac{3458}{920716}$ $\blacktriangleright \frac{1729}{480635} = \frac{3458}{961270}$ $\blacktriangleright \frac{1729}{568043} = \frac{1092}{358764}$

$\blacktriangleright \frac{1729}{460538} = \frac{3458}{921076}$ $\blacktriangleright \frac{1729}{483506} = \frac{3458}{967012}$ $\blacktriangleright \frac{1729}{605834} = \frac{1365}{478290}$

$\blacktriangleright \frac{1729}{460835} = \frac{3458}{921670}$ $\blacktriangleright \frac{1729}{483605} = \frac{3458}{967210}$ $\blacktriangleright \frac{1729}{643058} = \frac{1064}{395728}$

16 Pythagorean Triples and Patterns

16.1 Pythagorean Triples With 1729

$665^2+1596^2 := \mathbf{1729^2}$

$\mathbf{1729^2}+672^2 := 1855^2$

$\mathbf{1729^2}+1140^2 := 2071^2$

$\mathbf{1729^2}+2028^2 := 2665^2$

$\mathbf{1729^2}+3960^2 := 4321^2$

$\mathbf{1729^2}+5928^2 := 6175^2$

$\mathbf{1729^2}+8760^2 := 8929^2$

$\mathbf{1729^2}+11172^2 := 11305^2$

$\mathbf{1729^2}+16380^2 := 16471^2$

$\mathbf{1729^2}+78660^2 := 78679^2$

$\mathbf{1729^2}+30480^2 := 30529^2$

$\mathbf{1729^2}+114972^2 := 114985^2$

$\mathbf{1729^2}+213528^2 := 213535^2$

$\mathbf{1729^2}+1494720^2 := 1494721^2$

16.1.1 Blocks of 10 and 100

$$1729\,0^2+74736024^2 := 74736026^2$$
$$1729\,1^2+149489340^2 := 149489341^2$$
$$1729\,2^2+74753315^2 := 74753317^2$$
$$1729\,3^2+149523924^2 := 149523925^2$$
$$1729\,4^2+74770608^2 := 74770610^2$$
$$1729\,5^2+149558512^2 := 149558513^2$$
$$1729\,6^2+74787903^2 := 74787905^2$$
$$1729\,7^2+149593104^2 := 149593105^2$$
$$1729\,8^2+74805200^2 := 74805202^2$$
$$1729\,9^2+149627700^2 := 149627701^2$$

$$1729\,00^2+7473602499^2 := 7473602501^2$$
$$1729\,01^2+14947377900^2 := 14947377901^2$$
$$1729\,02^2+7473775400^2 := 7473775402^2$$
$$1729\,03^2+14947723704^2 := 14947723705^2$$
$$1729\,04^2+7473948303^2 := 7473948305^2$$
$$1729\,05^2+14948069512^2 := 14948069513^2$$
$$1729\,06^2+7474121208^2 := 7474121210^2$$
$$1729\,07^2+14948415324^2 := 14948415325^2$$
$$1729\,08^2+7474294115^2 := 7474294117^2$$
$$1729\,09^2+14948761140^2 := 14948761141^2$$
$$1729\,10^2+7474467024^2 := 7474467026^2$$
$$1729\,11^2+14949106960^2 := 14949106961^2$$
$$1729\,12^2+7474639935^2 := 7474639937^2$$
$$1729\,13^2+14949452784^2 := 14949452785^2$$
$$1729\,14^2+7474812848^2 := 7474812850^2$$
$$1729\,15^2+14949798612^2 := 14949798613^2$$
$$1729\,16^2+7474985763^2 := 7474985765^2$$
$$1729\,17^2+14950144444^2 := 14950144445^2$$
$$1729\,18^2+7475158680^2 := 7475158682^2$$
$$1729\,19^2+14950490280^2 := 14950490281^2$$
$$1729\,20^2+7475331599^2 := 7475331601^2$$
$$1729\,21^2+14950836120^2 := 14950836121^2$$
$$1729\,22^2+7475504520^2 := 7475504522^2$$
$$1729\,23^2+14951181964^2 := 14951181965^2$$
$$1729\,24^2+7475677443^2 := 7475677445^2$$
$$1729\,25^2+14951527812^2 := 14951527813^2$$
$$1729\,26^2+7475850368^2 := 7475850370^2$$
$$1729\,27^2+14951873664^2 := 14951873665^2$$
$$1729\,28^2+7476023295^2 := 7476023297^2$$
$$1729\,29^2+14952219520^2 := 14952219521^2$$
$$1729\,30^2+7476196224^2 := 7476196226^2$$
$$1729\,31^2+14952565380^2 := 14952565381^2$$
$$1729\,32^2+7476369155^2 := 7476369157^2$$
$$1729\,33^2+14952911244^2 := 14952911245^2$$
$$1729\,34^2+7476542088^2 := 7476542090^2$$
$$1729\,35^2+14953257112^2 := 14953257113^2$$
$$1729\,36^2+7476715023^2 := 7476715025^2$$
$$1729\,37^2+14953602984^2 := 14953602985^2$$
$$1729\,38^2+7476887960^2 := 7476887962^2$$
$$1729\,39^2+14953948860^2 := 14953948861^2$$
$$1729\,40^2+7477060899^2 := 7477060901^2$$
$$1729\,41^2+14954294740^2 := 14954294741^2$$
$$1729\,42^2+7477233840^2 := 7477233842^2$$
$$1729\,43^2+14954640624^2 := 14954640625^2$$
$$1729\,44^2+7477406783^2 := 7477406785^2$$
$$1729\,45^2+14954986512^2 := 14954986513^2$$
$$1729\,46^2+7477579728^2 := 7477579730^2$$
$$1729\,47^2+14955332404^2 := 14955332405^2$$
$$1729\,48^2+7477752675^2 := 7477752677^2$$
$$1729\,49^2+14955678300^2 := 14955678301^2$$
$$1729\,50^2+7477925624^2 := 7477925626^2$$
$$1729\,51^2+14956024200^2 := 14956024201^2$$
$$1729\,52^2+7478098575^2 := 7478098577^2$$
$$1729\,53^2+14956370104^2 := 14956370105^2$$
$$1729\,54^2+7478271528^2 := 7478271530^2$$
$$1729\,55^2+14956716012^2 := 14956716013^2$$

$$1729\,56^2+7478444483^2 := 7478444485^2$$
$$1729\,57^2+14957061924^2 := 14957061925^2$$
$$1729\,58^2+7478617440^2 := 7478617442^2$$
$$1729\,59^2+14957407840^2 := 14957407841^2$$
$$1729\,60^2+7478790399^2 := 7478790401^2$$
$$1729\,61^2+14957753760^2 := 14957753761^2$$
$$1729\,62^2+7478963360^2 := 7478963362^2$$
$$1729\,63^2+14958099684^2 := 14958099685^2$$
$$1729\,64^2+7479136323^2 := 7479136325^2$$
$$1729\,65^2+14958445612^2 := 14958445613^2$$
$$1729\,66^2+7479309288^2 := 7479309290^2$$
$$1729\,67^2+14958791544^2 := 14958791545^2$$
$$1729\,68^2+7479482255^2 := 7479482257^2$$
$$1729\,69^2+14959137480^2 := 14959137481^2$$
$$1729\,70^2+7479655224^2 := 7479655226^2$$
$$1729\,71^2+14959483420^2 := 14959483421^2$$
$$1729\,72^2+7479828195^2 := 7479828197^2$$
$$1729\,73^2+14959829364^2 := 14959829365^2$$
$$1729\,74^2+7480001168^2 := 7480001170^2$$
$$1729\,75^2+14960175312^2 := 14960175313^2$$
$$1729\,76^2+7480174143^2 := 7480174145^2$$
$$1729\,77^2+14960521264^2 := 14960521265^2$$
$$1729\,78^2+7480347120^2 := 7480347122^2$$
$$1729\,79^2+14960867220^2 := 14960867221^2$$
$$1729\,80^2+7480520099^2 := 7480520101^2$$
$$1729\,81^2+14961213180^2 := 14961213181^2$$
$$1729\,82^2+7480693080^2 := 7480693082^2$$
$$1729\,83^2+14961559144^2 := 14961559145^2$$
$$1729\,84^2+7480866063^2 := 7480866065^2$$
$$1729\,85^2+14961905112^2 := 14961905113^2$$
$$1729\,86^2+7481039048^2 := 7481039050^2$$
$$1729\,87^2+14962251084^2 := 14962251085^2$$
$$1729\,88^2+7481212035^2 := 7481212037^2$$
$$1729\,89^2+14962597060^2 := 14962597061^2$$
$$1729\,90^2+7481385024^2 := 7481385026^2$$
$$1729\,91^2+14962943040^2 := 14962943041^2$$
$$1729\,92^2+7481558015^2 := 7481558017^2$$
$$1729\,93^2+14963289024^2 := 14963289025^2$$
$$1729\,94^2+7481731008^2 := 7481731010^2$$
$$1729\,95^2+14963635012^2 := 14963635013^2$$
$$1729\,96^2+7481904003^2 := 7481904005^2$$
$$1729\,97^2+14963981004^2 := 14963981005^2$$
$$1729\,98^2+7482077000^2 := 7482077002^2$$
$$1729\,99^2+14964327000^2 := 14964327001^2$$

16.2 Pandigital Type Patterns With 1729

16.2.1 Patterns With 1729

$$13271^2 + 166200^2 := 166729^2$$
$$1288271^2 + 16662000^2 := 1671\,1729^2$$
$$128438271^2 + 1666620000^2 := 167156\,1729^2$$

$$1729\,0^2 + 74736024^2 := 74736026^2$$
$$1729\,00^2 + 7473602499^2 := 7473602501^2$$
$$1729\,000^2 + 747360249999^2 := 747360250001^2$$
$$1729\,0000^2 + 74736024999999^2 := 74736025000001^2$$

$$8318^2 + \mathbf{1729}7280^2 := \mathbf{1729}7282$$
$$83180^2 + \mathbf{1729}728099^2 := \mathbf{1729}728101$$

16.2.2 Pandigital Type Patterns

$$0270684^2 + 1708000^2 := \mathbf{1729}316^2$$
$$\mathbf{12}0270684^2 + 18788000^2 := \mathbf{12\,1729}316^2$$
$$\mathbf{1232}0270684^2 + 189588000^2 := \mathbf{1232\,1729}316^2$$
$$\mathbf{123432}0270684^2 + 1897588000^2 := \mathbf{123432\,1729}316^2$$
$$\mathbf{12345432}0270684^2 + 18977588000^2 := \mathbf{12345432\,1729}316^2$$
$$\mathbf{1234565432}0270684^2 + 189777588000^2 := \mathbf{1234565432\,1729}316^2$$
$$\mathbf{123456765432}0270684^2 + 1897777588000^2 := \mathbf{123456765432\,1729}316^2$$
$$\mathbf{12345678765432}0270684^2 + 18977777588000^2 := \mathbf{12345678765432\,1729}316^2$$
$$\mathbf{1234567898765432}0270684^2 + 189777777588000^2 := \mathbf{1234567898765432\,1729}316^2$$

$$0270684^2 + 1708000^2 := \mathbf{1729}316^2$$
$$\mathbf{1020}0270684^2 + 172508000^2 := \mathbf{1020\,1729}316^2$$
$$\mathbf{10203020}0270684^2 + 17252508000^2 := \mathbf{10203020\,1729}316^2$$
$$\mathbf{102030403020}0270684^2 + 1725252508000^2 := \mathbf{102030403020\,1729}316^2$$
$$\mathbf{1020304050403020}0270684^2 + 172525252508000^2 := \mathbf{1020304050403020\,1729}316^2$$
$$\mathbf{10203040506050403020}0270684^2 + 17252525252508000^2 := \mathbf{10203040506050403020\,1729}316^2$$
$$\mathbf{102030405060706050403020}0270684^2 + 1725252525252508000^2 := \mathbf{102030405060706050403020\,1729}316^2$$
$$\mathbf{10203040506070806050403020}0270684^2 + 172525252525252508000^2 := \mathbf{10203040506070806050403020\,1729}316^2$$
$$\mathbf{1020304050607080908070605040302}0270684^2 + 1725252525252525508000^2 := \mathbf{1020304050607080908070605040302\,1729}316^2$$

$$0267264^2 + 1712000^2 := 1732736^2$$
$$\mathbf{1020}0267264^2 + \mathbf{1729}12000^2 := \mathbf{1020}1732736^2$$
$$\mathbf{10203020}0267264^2 + \mathbf{1729}2912000^2 := \mathbf{10203020}1732736^2$$
$$\mathbf{102030403020}0267264^2 + \mathbf{1729}292912000^2 := \mathbf{102030403020}1732736^2$$
$$\mathbf{1020304050403020}0267264^2 + \mathbf{1729}29292912000^2 := \mathbf{1020304050403020}1732736^2$$
$$\mathbf{10203040506050403020}0267264^2 + \mathbf{1729}2929292912000^2 := \mathbf{10203040506050403020}1732736^2$$
$$\mathbf{102030405060706050403020}0267264^2 + \mathbf{1729}292929292912000^2 := \mathbf{102030405060706050403020}1732736^2$$
$$\mathbf{10203040506070806050403020}0267264^2 + \mathbf{1729}29292929292912000^2 := \mathbf{10203040506070806050403020}1732736^2$$
$$\mathbf{1020304050607080908070605040302}0267264^2 + \mathbf{1729}2929292929292912000^2 := \mathbf{1020304050607080908070605040302}1732736^2$$

16.3 Magic Squares and Pythagorean Triples

Below few examples of **Pythagorean triples** generating magic squares, where the number 1729 is one of the entries of magic squares.

1. **(252, 864, 900)** $\Rightarrow 900 - 864 = 6^2$, $\boldsymbol{S}_{6\times 6} := 10584$, $\boldsymbol{T}_{36} := 252^2$,
$E := \{\mathbf{1729}, 1731, \ldots, 1797, 1799\}$

Hardy-Ramanujan Number - 1729, **Zenodo**, December 22, 2021, pp. 1-106, http://doi.org/10.5281/zenodo.5799640

2. **(287, 816, 865)** $\Rightarrow 865-816=7^2$, $S_{7\times 7}:=11767$, $T_{49}:=287^2$,
$E:=\{1633,1635,\ldots,1727,\mathbf{1729}\}$ or $E:=\{1657,1658,\ldots,1704,1705\}$

3. **(473, 864, 985)** $\Rightarrow 985-864=11^2$, $S_{11\times 11}:=20339$, $T_{121}:=473^2$,
$E:=\{\mathbf{1729},1731,\ldots,1967,1969\}$ or $E:=\{1789,1790,\ldots,1908,1909\}$

4. **(703, 504, 865)** $\Rightarrow 865-504=19^2$, $S_{19\times 19}:=26011$, $T_{361}:=703^2$,
$E:=\{1009,1011,\ldots,1727,\mathbf{1729}\}$ or $E:=\{1189,1190,\ldots,1548,1549\}$

5. **(290, 816, 866)** $\Rightarrow 866-290=24^2$, $S_{24\times 24}:=27744$, $T_{576}:=816^2$,
$E:=\{581,583,\ldots,\mathbf{1729},1731\}$

6. **(864, 1152, 1440)** $\Rightarrow 1440-864=24^2$, $S_{24\times 24}:=55296$, $T_{576}:=1152^2$,
$E:=\{\mathbf{1729},1731,\ldots,2877,2879\}$

7. **(624, 1457, 1585)** $\Rightarrow 1585-624=31^2$, $S_{31\times 31}:=68479$, $T_{961}:=1457^2$,
$E:=\{1249,1251,\ldots,3167,3169\}$ or $E:=\{\mathbf{1729},1730,\ldots,2688,689\}$

8. **(864, 2223, 2385)** $\Rightarrow 2385-864=39^2$, $S_{39\times 39}:=126711$, $T_{1521}:=2223^2$,
$E:=\{\mathbf{1729},1731,\ldots,4767,4769\}$ or $E:=\{2489,2490,\ldots,4008,4009\}$

9. **(864, 2852, 2980)** $\Rightarrow 2980-864=46^2$,; $S_{46\times 46}:=176824$, $T_{2116}:=2852^2$,
$E:=\{\mathbf{1729},1731,\ldots,5957,5959\}$

16.4 Magic Squares

Based on triples given above, below are magic squares of orders 6, 7 and 11 referring the first three items.

16.4.1 Magic Square of Order 6 × 6

						10584
1729	1773	1783	1795	1761	1743	*10584*
1785	1741	1797	1755	1769	1737	*10584*
1751	1739	1753	1781	1789	1771	*10584*
1791	1759	1735	1775	1747	1777	*10584*
1765	1793	1749	1733	1787	1757	*10584*
1763	1779	1767	1745	1731	1799	*10584*
10584	*10584*	*10584*	*10584*	*10584*	*10584*	*10584*

$$\mathbf{1729}+1731+\ldots+1799=6\times 10584=63504=252^2=900^2-864^2$$

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16.4.2 Pandiagonal Magic Square of Order 7 × 7

		11767	*11767*	*11767*	*11767*	*11767*	*11767*	*11767*
	1633	1649	1665	1681	1697	1713	**1729**	*11767*
11767	1711	1727	1645	1647	1663	1679	1695	*11767*
11767	1677	1693	1709	1725	1643	1659	1661	*11767*
11767	1657	1673	1675	1691	1707	1723	1641	*11767*
11767	1721	1639	1655	1671	1687	1689	1705	*11767*
11767	1701	1703	1719	1637	1653	1669	1685	*11767*
11767	1667	1683	1699	1715	1717	1635	1651	*11767*
	11767	*11767*	*11767*	*11767*	*11767*	*11767*	*11767*	*11767*

$$1633 + 1635 + \ldots + \mathbf{1729} = 7 \times 11767 = 82369 = 287^2 = 865^2 - 816^2$$

16.4.3 Pandiagonal Magic Square of Order 11 × 11

		20339	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*
	1729	1769	1787	1805	1823	1841	1881	1899	1917	1935	1953	*20339*
20339	1929	1969	1745	1763	1781	1799	1817	1857	1875	1893	1911	*20339*
20339	1887	1905	1945	1963	1739	1757	1775	1815	1833	1851	1869	*20339*
20339	1845	1863	1903	1921	1939	1957	1733	1751	1791	1809	1827	*20339*
20339	1803	1821	1839	1879	1897	1915	1933	1951	1749	1767	1785	*20339*
20339	1761	1779	1797	1837	1855	1873	1891	1909	1927	1967	1743	*20339*
20339	1961	1737	1755	1773	1813	1831	1849	1867	1885	1925	1943	*20339*
20339	1919	1937	1955	1731	1771	1789	1807	1825	1843	1861	1901	*20339*
20339	1877	1895	1913	1931	1949	1747	1765	1783	1801	1819	20339	*20339*
20339	1835	1853	1871	1889	1907	1947	1965	1741	1759	1777	1795	*20339*
20339	1793	1811	1829	1847	1865	1883	1923	1941	1959	1735	1753	*20339*
	20339	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*	*20339*

$$\mathbf{1729} + 1731 + \ldots + 1969 = 11 \times 20339 = 223729 = 473^2 = 985^2 - 864^2$$

17 Upside Down and Mirror Looking

It is well known that the digits 0, 1 and 8 are always mirror looking and upside down. The digits 6 and 9 are only upside down but not mirror looking. If we write 2 and 5 in digital ways as appears in lifts,

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watches, etc., then they becomes upside down and mirror looking. The only difference is that in case of mirror looking 2 becomes 5 and 5 as 2. Some studies in this direction can be seen in author's work. Later Macau Post Office, China produced a stamp on this work.

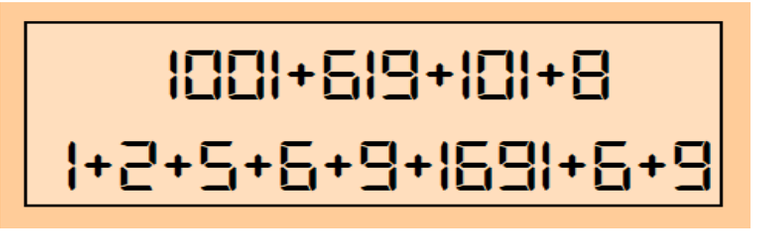
https://bit.ly/30PVM7y
https://bit.ly/3FlFEtn

Below are some representations of **1729** upside down and mirror looking.

17.1 Upside Down

$$\begin{aligned}\mathbf{1729} &:= 1001+619+101+8\\ &:= 1+2+5+6+9+1691+6+9\end{aligned}$$

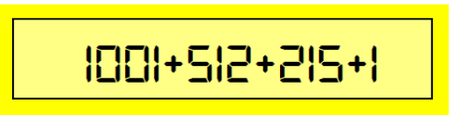
See below the images:

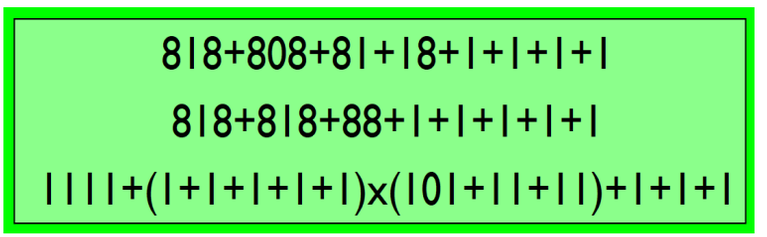


17.2 Upside Down and Mirror Looking

$$\begin{aligned}\mathbf{1729} &:= 1001+512+215+1\\ &:= 818+808+81+18+1+1+1+1\\ &:= 818+818+88+1+1+1+1+1\\ &:= 1111+(1+1+1+1+1)\times(101+11+11)+1+1+1\end{aligned}$$

See below the images:





In case of 2 and 5, the numbers are written in digital form. Looking in mirror, 2 becomes 5 and 5 becomes 2.

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18 Prime Numbers with Digits 1, 2, 7, 9

Below are prime numbers obtained from the digits of **1729** without repetition.

$$17, 29, 71, 127, 179, 197, 271, 719, 971, 2917, 7219, 9721$$

19 Palindromic Representation

The number **1729**271 is palindrome made from the digits of **1729**. The representation below is in terms of digits of this palindrome.

$$\mathbf{1729} := 1 + 72 \times (9 \times 2 + 7 - 1).$$

20 Multiplicative Factors

It is well known that

$$\mathbf{1729} := 13 \times 133 = 7 \times 13 \times 19$$

The representations below are in terms of multiplicative factors using the digit in order of **1729** and reverse 9271.

$$\begin{aligned} \mathbf{1729} &:= \left(1 + 7 + 2 + \sqrt{9}\right) \times \left(\left(\sqrt{9}\right)! + 2^7 - 1\right) \\ &:= ((1 + 7) \times 2 - 9) \times \left(1 + 7 + 2 + \sqrt{9}\right) \times (1 + 7 + 2 + 9). \end{aligned}$$

21 Special Digits

Two date are very important. Once date of birth and second date of death of S. Ramanjuan. The **1729** is written in terms of both of these dates in increasing order.

21.1 Birth Day: 22.12.1887

$$\mathbf{1729} := (-2 + 21) \times (-2 - 1 + 8 + 8) \times 7$$

21.2 Death Day: 26.04.1920

$$\mathbf{1729} := (-(2 + 60) \times 4 + 1) \times (-9 + 2 + 0)$$

22 Numbers From 1 to 1729 in Terms of 17291729 and Reverse

Below are numbers from 1 to 1729 written in terms of digits of **1729** used twice, only with the operations **addition, subtraction** and **multiplication**. These are written in reverse order too, i.e., in terms of **92719271**. Below are only few examples. The complete list is given at the end of the work as an Appendix 33.

$$\begin{aligned}
\mathbf{1} &:= 17-29-1+7-2+9 && = 9271/9271\\
\mathbf{2} &:= 17-(29-17)\times 2+9 && = (92-71)+((9-27)-1)\\
\mathbf{3} &:= 1\times 72-91-7+29 && = (92-(71-9))-(27\times 1)\\
\mathbf{4} &:= 1+72-91-7+29 && = 9+((2-7)\times(1^{9271}))\\
\mathbf{5} &:= 17-2-91+72+9 && = (9+(2-7))+(1^{9271})\\
\mathbf{6} &:= 17\times 2-91+72-9 && = (9+27)-((19\times 2)-(7+1))\\
\mathbf{7} &:= 1+7+2+9+17-29 && = (92+7)-((19+2)+71)\\
\mathbf{8} &:= (1+7)\times(-2-9-17+29) && = ((9-27)\times(1^{9}))+(27-1)\\
\mathbf{9} &:= 17+2-91+72+9 && = ((9-27)-((1^{9})-27))+1\\
\mathbf{10} &:= -1+7\times 2+9+17-29 && = (9+2)-((7+19)/(27-1))
\end{aligned}$$

For complete list from 1 to 1729 see Appendix 33.

23 Running Equality Expressions

By running expressions we understand as when the numbers are used in a sequence 1 to 9 and 9 to 1 or 9 to 0. The vaules appearing in between are separated by equality sign, for example,

$$\begin{aligned}
120 &:= 1\times(2+3)! && = 4+5!/6+7+89\\
&:= 98+7+6+5+4 && = (3+2)!\times 1\\
&:= \sqrt{9}+87+6\times 5 && = \sqrt{4}\times 3\times 2\times 10.
\end{aligned}$$

In case of **1729** we are unable to write as above. Extra operations like, **Fibonacci sequence** and **Triangular number** values are used.

$$\begin{aligned}
\mathbf{1729} &:= -1+T(-2+T(T(3)))+T(T(T(4))) && = T(5)+6+7+T(T(8))+T(T(9))\\
&:= 12^3-4+5 && = T(6)+7+T(T(8))+T(T(9))\\
&:= F(12)\times 3\times 4-5+6 && = T(7)+T(T(8))+T(T(9))\\
&:= 12^3-T(4)+5+6 && = T(7)+T(T(8))+T(T(9))\\
\\
&:= -9+T(T(8))+T(T(7))+T(T(6)+T(5)) && = T(T(T(4)))+T((T(T(3))-2))-1\\
&:= 98+7\times F(F(6)+5) && = T(T(T(4)))-T(T(3))+210\\
&:= T(T(9))+T(T(8))+7+T(6) && = 54\times 32+1\\
&:= T(T(9))+T(T(8))+T(7) && = -6\times 5+T(T(4))\times 32-1\\
& && = F(6)\times 54\times F(3)\times 2+1
\end{aligned}$$

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$$= -65 + 43^2 - F(10).$$

$$\begin{aligned}
\mathbf{1729} &:= (F(1) - F(6)) \times (F(3) - F(8)) \times F(7) = T(1) + (T(6) + T(3)) \times (T(8) + T(7)) \\
&:= (-F(1) + F(6) \times F(8) - F(9)) \times F(7) = T(1) \times T(6) \times (T(8) + T(9)) + T(7) \\
&:= (-F(1) - F(9) + F(8) \times F(6)) \times F(7) = (T(1) \times T(9) + T(8)) \times T(6) + T(7)
\end{aligned}$$

23.1 Increasing and Decreasing

$$\begin{aligned}
\mathbf{1729} &:= T(9) + 8 \times 7 \times 6 \times 5 + 4 && = (F(F(4)) + 5) \times (F(6) + F(F(7))) + 8 + F(9) \\
& && = 4 - T(56) + T(T(7) + 8 + T(9) \\
&:= 12^3 - 4 + 5 && = 5! \times T(4) + T(32) + 1 \\
&:= 12^3 + (-4 + 5)^6 && = T(F(6) + 5 \times T(4)) - 3 + 21 \\
& && = (F(6) + 5) \times (T(4! - F(3!)) - 2 - 1 \times 0!) \\
&:= 123 \times (4 \times 5 - 6) + 7 && = F(7) \times (6 + (5 - F(4)) \times 3 \times 21 + 0!) \\
&:= T(12) + 3 - 4 + 56 + T(7 \times 8) && = 876 + F(T(5)) + 4 \times 3 + T(21) \\
& && = \sqrt{\sqrt{87 - 6}} + 54 \times 32 - 1 - 0! \\
&:= 12 - 3 + 4^5 - 6 + 78 \times 9 && = (9 \times F(8) + 7 + T(F(6)) \times 5) \times 4 - 3! + T(21) \\
& && = (9 - 8) \times 7 \times (6 + (5 \times 4 \times F(3)) \times (2 + 1)! + 0!)
\end{aligned}$$

24 Selfie Representations

In Sections 11 we have given the idea of selfie numbers and selfie fractions. More detailed study can be seen at author's work given reference list. Here we have written the number **1729** as selfie number by using difference sequence values, such as, **Fibonacci, Triangular, Polygon-type,** etc.

24.1 Fibonacci and Triangular

Below are selfie representation of **1729** in terms of Fibonacci sequence and Triangular values in order of digits and reverse.

$$\begin{aligned}
\mathbf{1729} &:= 1 + (F(7) - F(2))^{\sqrt{9}} \\
&:= T(-1 + T(7)) \times T(2) + T(F(9)) \\
&:= 9!/T\left(\sqrt{-T(T(2)) + T(T(7))}\right) + 1 \\
&:= T(F(9)) + T(2) \times T(T(7) - 1)
\end{aligned}$$

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24.2 Polygonal-Type

According to **s-ogonal** values given in subsection 11.2, below are selfie representations of **1729**:

24.2.1 Digit's Order

$$\begin{aligned}
\mathbf{1729} &:= 1\times 7\times (P_4(P_4(P_4(2)))-9)\\
&:= 1+(7+P_5(2))^{\sqrt{9}}\\
&:= 1\times P_7\left(\sqrt{P_7(7)\times P_7(2)}\right)-P_7(9)\\
&:= 1\times P_8(7)\times\left(-P_8(2)+P_8(\sqrt{9})\right)\\
&:= 1+72\times P_9(\sqrt{9})\\
&:= -1-P_{10}(7+P_{10}(2))+P_{10}(P_{10}(\sqrt{9}))\\
&:= -1^7+P_{11}(P_{11}(2)+9)\\
&:= P_{12}(1+7+2+9)\\
&:= P_{24}(-1+7-2+9)\\
&:= P_{84}((1+7)\times 2-9).
\end{aligned}$$

24.2.2 Reverse Order of Digits

$$\begin{aligned}
\mathbf{1729} &:= (-9+P_4(P_4(P_4(2))))\times 7\times 1\\
&:= P_5(\sqrt{9})+P_5(P_5(2)\times 7-1)\\
&:= -P_7(9)+P_7(27+1)\\
&:= P_8(9)\times P_8(2)-71\\
&:= P_9(\sqrt{9})\times (P_9(2))!/7!+1\\
&:= P_{10}(P_{10}(\sqrt{9}))-P_{10}(P_{10}(2)+7)-1\\
&:= P_{11}(9)+P_{11}(P_{11}(2)+7))+1\\
&:= P_{12}(9+2+7+1)\\
&:= P_{24}(9-2+7-1)\\
&:= P_{84}(-9+2\times(7+1)).
\end{aligned}$$

Combining the results given above with given in Subsection 11.2, we have following unified values:

$$\begin{aligned}
\mathbf{1729} &:= P_{12}(19)=P_{12}(1+7+2+9) \quad =P_{12}(9+2+7+1)\\
&:= P_{24}(13)=P_{24}(-1+7-2+9)=P_{24}(9-2+7-1)\\
&:= P_{84}(7) \quad =P_{84}((1+7)\times 2-9)=P_{84}(-9+2\times(7+1)).
\end{aligned}$$

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25 Fixed Digits Repetitions Prime Patterns

This section deals with patterns with prime numbers with **1729**. These patterns are considered in such a way that after second prime number there is fixed digit or digits repeats in subsequent primes. But the approach don't go much longer. Below are examples of patterns of 6, 7 and 8 prime numbers, i.e., 6-patterns, 7-patterns and 8-patterns respectively. These patterns are always with **1729**. The detailed work shall be given elsewhere.

25.1 6-Patterns

► 261**1729**
261 0 **1729**
261 0 0 **1729**
261 0 0 0 **1729**
261 0 0 0 0 **1729**
261 0 0 0 0 0 **1729**

► **1729**87
939 **1729**87
939 939 **1729**87
939 939 939 **1729**87
939 939 939 939 **1729**87
939 939 939 939 939 **1729**87

► 10**17293**
87 10**17293**
87 87 10**17293**
87 87 87 10**17293**
87 87 87 87 10**17293**
87 87 87 87 87 10**17293**

► 10**17299**
1 435 0**17299**
1 435 435 0**17299**
1 435 435 435 0**17299**
1 435 435 435 435 0**17299**
1 435 435 435 435 435 0**17299**

► 237**1729**
237 99 **1729**
237 99 99 **1729**
237 99 99 99 **1729**
237 99 99 99 99 **1729**
237 99 99 99 99 99 **1729**

► 12**17299**
861 12**17299**
861 861 12**17299**
861 861 861 12**17299**
861 861 861 861 12**17299**
861 861 861 861 861 12**17299**

► **1729**73
17297 444 3
17297 444 444 3
17297 444 444 444 3
17297 444 444 444 444 3
17297 444 444 444 444 444 3

► 153**1729**
15 348 3**1729**
15 348 348 3**1729**
15 348 348 348 3**1729**
15 348 348 348 348 3**1729**
15 348 348 348 348 348 3**1729**

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► 153**1729**
153 483 **1729**
153 483 483 **1729**
153 483 483 483 **1729**
153 483 483 483 483 **1729**
153 483 483 483 483 483 **1729**

► **1729**237
954 **1729**237
954 954 **1729**237
954 954 954 **1729**237
954 954 954 954 **1729**237
954 954 954 954 954 **1729**237

► **1729**477
172947 966 7
172947 966 966 7
172947 966 966 966 7
172947 966 966 966 966 7
172947 966 966 966 966 966 7

► **1729**493
519 **1729**493
519 519 **1729**493
519 519 519 **1729**493
519 519 519 519 **1729**493
519 519 519 519 519 **1729**493

► **1729**543
1729 783 543
1729 783 783 543
1729 783 783 783 543
1729 783 783 783 783 543
1729 783 783 783 783 783 543

► **1729**723
1729 327 723
1729 327 327 723
1729 327 327 327 723
1729 327 327 327 327 723
1729 327 327 327 327 327 723

► **1729**901
330 **1729**901
330 330 **1729**901
330 330 330 **1729**901
330 330 330 330 **1729**901
330 330 330 330 330 **1729**901

► **1729**909
172990 663 9
172990 663 663 9
172990 663 663 663 9
172990 663 663 663 663 9
172990 663 663 663 663 663 9

► 2**1729**01
2 576 **1729**01
2 576 576 **1729**01
2 576 576 576 **1729**01
2 576 576 576 576 **1729**01
2 576 576 576 576 576 **1729**01

► 2**1729**79
789 2**1729**79
789 789 2**1729**79
789 789 789 2**1729**79
789 789 789 789 2**1729**79
789 789 789 789 789 2**1729**79

► 32**1729**7
32 450 **1729**7
32 450 450 **1729**7
32 450 450 450 **1729**7
32 450 450 450 450 **1729**7
32 450 450 450 450 450 **1729**7

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►36**1729**3
36**1729** 183 3
36**1729** 183 183 3
36**1729** 183 183 183 3
36**1729** 183 183 183 183 3
36**1729** 183 183 183 183 183 3

►39**1729**7
534 39**1729**7
534 534 39**1729**7
534 534 534 39**1729**7
534 534 534 534 39**1729**7
534 534 534 534 534 39**1729**7

►56**1729**1
56**1729**1 363
56**1729**1 363 363
56**1729**1 363 363 363
56**1729**1 363 363 363 363
56**1729**1 363 363 363 363 363

►58**1729**3
840 58**1729**3
840 840 58**1729**3
840 840 840 58**1729**3
840 840 840 840 58**1729**3
840 840 840 840 840 58**1729**3

►604**1729**
604**1729** 579
604**1729** 579 579
604**1729** 579 579 579
604**1729** 579 579 579 579
604**1729** 579 579 579 579 579

►6**1729**27
6**1729** 723 27
6**1729** 723 723 27
6**1729** 723 723 723 27
6**1729** 723 723 723 723 27
6**1729** 723 723 723 723 723 27

►621**1729**
621 219 **1729**
621 219 219 **1729**
621 219 219 219 **1729**
621 219 219 219 219 **1729**
621 219 219 219 219 219 **1729**

►69**1729**9
6 654 9**1729**9
6 654 654 9**1729**9
6 654 654 654 9**1729**9
6 654 654 654 654 9**1729**9
6 654 654 654 654 654 9**1729**9

►69**1729**9
69**1729** 948 9
69**1729** 948 948 9
69**1729** 948 948 948 9
69**1729** 948 948 948 948 9
69**1729** 948 948 948 948 948 9

►69**1729**9
69**1729**9 489
69**1729**9 489 489
69**1729**9 489 489 489
69**1729**9 489 489 489 489
69**1729**9 489 489 489 489 489

►705**1729**
70 186 5**1729**
70 186 186 5**1729**
70 186 186 186 5**1729**
70 186 186 186 186 5**1729**
70 186 186 186 186 186 5**1729**

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► 76**1729**3
7 963 6**1729**3
7 963 963 6**1729**3
7 963 963 963 6**1729**3
7 963 963 963 963 6**1729**3
7 963 963 963 963 963 6**1729**3

► **1729**73
6891 **1729**73
6891 6891 **1729**73
6891 6891 6891 **1729**73
6891 6891 6891 6891 **1729**73
6891 6891 6891 6891 6891 **1729**73

► 810**1729**
810 660 **1729**
810 660 660 **1729**
810 660 660 660 **1729**
810 660 660 660 660 **1729**
810 660 660 660 660 660 **1729**

► 55**1729**
5 3036 5**1729**
5 3036 3036 5**1729**
5 3036 3036 3036 5**1729**
5 3036 3036 3036 3036 5**1729**
5 3036 3036 3036 3036 3036 5**1729**

► 8**1729**11
8**1729**1 840 1
8**1729**1 840 840 1
8**1729**1 840 840 840 1
8**1729**1 840 840 840 840 1
8**1729**1 840 840 840 840 840 1

► 61**1729**
61**1729** 8151
61**1729** 8151 8151
61**1729** 8151 8151 8151
61**1729** 8151 8151 8151 8151
61**1729** 8151 8151 8151 8151 8151

► 86**1729**1
588 86**1729**1
588 588 86**1729**1
588 588 588 86**1729**1
588 588 588 588 86**1729**1
588 588 588 588 588 86**1729**1

► 8**1729**1
8 9354 **1729**1
8 9354 9354 **1729**1
8 9354 9354 9354 **1729**1
8 9354 9354 9354 9354 **1729**1
8 9354 9354 9354 9354 9354 **1729**1

► 9**1729**57
9**1729**57 603
9**1729**57 603 603
9**1729**57 603 603 603
9**1729**57 603 603 603 603
9**1729**57 603 603 603 603 603

► 93**1729**
93 3288 **1729**
93 3288 3288 **1729**
93 3288 3288 3288 **1729**
93 3288 3288 3288 3288 **1729**
93 3288 3288 3288 3288 3288 **1729**

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25.2 7-Patterns

►225**1729**
225 0 **1729**
225 0 0 **1729**
225 0 0 0 **1729**
225 0 0 0 0 **1729**
225 0 0 0 0 0 **1729**
225 0 0 0 0 0 0 **1729**

►61**1729**
61**1729** 81
61**1729** 81 81
61**1729** 81 81 81
61**1729** 81 81 81 81
61**1729** 81 81 81 81 81
61**1729** 81 81 81 81 81 81

►732**1729**7
7 15 32**1729**7
7 15 15 32**1729**7
7 15 15 15 32**1729**7
7 15 15 15 15 32**1729**7
7 15 15 15 15 15 32**1729**7
7 15 15 15 15 15 15 32**1729**7

►267**1729**
267 714 **1729**
267 714 714 **1729**
267 714 714 714 **1729**
267 714 714 714 714 **1729**
267 714 714 714 714 714 **1729**
267 714 714 714 714 714 714 **1729**

►3**1729**07
3 615 **1729**07
3 615 615 **1729**07
3 615 615 615 **1729**07
3 615 615 615 615 **1729**07
3 615 615 615 615 615 **1729**07
3 615 615 615 615 615 615 **1729**07

►501**1729**
501 222 **1729**
501 222 222 **1729**
501 222 222 222 **1729**
501 222 222 222 222 **1729**
501 222 222 222 222 222 **1729**
501 222 222 222 222 222 222 **1729**

►549**1729**
5 423 49**1729**
5 423 423 49**1729**
5 423 423 423 49**1729**
5 423 423 423 423 49**1729**
5 423 423 423 423 423 49**1729**
5 423 423 423 423 423 423 49**1729**

►549**1729**
54 234 9**1729**
54 234 234 9**1729**
54 234 234 234 9**1729**
54 234 234 234 234 9**1729**
54 234 234 234 234 234 9**1729**
54 234 234 234 234 234 234 9**1729**

►565**1729**
5 126 65**1729**
5 126 126 65**1729**
5 126 126 126 65**1729**
5 126 126 126 126 65**1729**
5 126 126 126 126 126 65**1729**
5 126 126 126 126 126 126 65**1729**

►63**1729**3
63**1729** 897 3
63**1729** 897 897 3
63**1729** 897 897 897 3
63**1729** 897 897 897 897 3
63**1729** 897 897 897 897 897 3
63**1729** 897 897 897 897 897 897 3

25.3 8-Patterns

► 13**1729**83
1 6 3**1729**83
1 6 6 3**1729**83
1 6 6 6 3**1729**83
1 6 6 6 6 3**1729**83
1 6 6 6 6 6 3**1729**83
1 6 6 6 6 6 6 3**1729**83
1 6 6 6 6 6 6 6 3**1729**83

► 78**1729**93
78 768 **1729**93
78 768 768 **1729**93
78 768 768 768 **1729**93
78 768 768 768 768 **1729**93
78 768 768 768 768 768 **1729**93
78 768 768 768 768 768 768 **1729**93
78 768 768 768 768 768 768 768 **1729**93

► 78**1729**93
7 876 8**1729**93
7 876 876 8**1729**93
7 876 876 876 8**1729**93
7 876 876 876 876 8**1729**93
7 876 876 876 876 876 8**1729**93
7 876 876 876 876 876 876 8**1729**93
7 876 876 876 876 876 876 876 8**1729**93

► 9039**1729**
141 9039**1729**
141 141 9039**1729**
141 141 141 9039**1729**
141 141 141 141 9039**1729**
141 141 141 141 141 9039**1729**
141 141 141 141 141 141 9039**1729**
141 141 141 141 141 141 141 9039**1729**

26 Embedded Palindromic Prime Numbers

Embedded or Nested palindromic prime numbers are well known in literature (ref. *https://oeis.org/A158089*). In this section we have given embedded palindromic numbers in such a way that it has the number **1729**. The study is done in two different ways. One considering all the digits, and second considering only the digits 1, 7, 2 and 9. In both the situations the we have the number **1729**.

26.1 All Digits With 1729

131
11311
92711311**1729**
339271131**1729**33
9339271131**1729**339

131
71317
1592713**1729**51
31592713**1729**513
331592713**17295**133

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191
71917
309271**1729**03
7309271**1729**037
97309271**1729**0379

191
71917
79271**1729**7
197792719**1729**7791
1197792719**1729**77911

191
71917
79271**1729**7
9279271**1729**729
79279271**1729**7297

191
71917
79271**1729**7
9279271**1729**729
99279271**1729**7299

191
9919199
72991919927
17**1729**91919927171
117**1729**919199271711

313
93139
7299931399927
1**1729**993139992711
11**1729**9931399927111

313
93139
9931399
1729993139992711
11**1729**9931399927111

313
93139
9931399
7299931399927
1**1729**993139992711
11**1729**9931399927111

313
9931399
7299931399927
1**1729**993139992711
11**1729**9931399927111

787
194787491
71947874917
9271947874**1729**
99271947874**1729**9

797
17971
711797117
19927117971**1729**91
119927117971**1729**911

797
77977
9779779
7**1729**7797792717
17**1729**77977927171

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797
77977
9779779
7**1729**7797792717
97**1729**77977927179

93139
9931399
7299931399927
1**1729**993139992711
11**1729**9931399927111

93239
9932399
199323991
92719932399**1729**
1192719932399**1729**11

97379
729737927
17297379271
3**1729**73792713
113**1729**7379271311

97379
729737927
17297379271
3**1729**73792713
753**1729**7379271357

97379
729737927
17297379271
3**1729**73792713
783**1729**7379271387

97379
729737927
17297379271
3**1729**73792713
903**1729**7379271309

97379
729737927
17297379271
92**1729**737927129
992**1729**7379271299

97379
729737927
17297379271
95**1729**737927159
995**1729**7379271599

729272927
17292729271
3**1729**27292713
93**1729**272927139
1193**1729**27292713911

927**1729**
11927**1729**11
311927**1729**113
1311927**1729**1131
111311927**1729**113111

313
93139
9931399
7299931399927
1**1729**993139992711
11**1729**9931399927111

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26.2 Digits 1, 7, 2, 9 and 1729

9271729
912927**1729**219
92912927**1729**21929
192912927**1729**219291
11192912927**1729**21929111.

9271729
77927**1729**77
9177927**1729**7719
779177927**1729**771977.

9271729
92927**1729**29
1929271729291
119192927**1729**291911.

9271729
11792**71729**711
797117927**1729**711797
9797117927**1729**7117979.

9271729
1929271729291
119192927**1729**291911
9797117927**1729**7117979.

9271729
972927**1729**279
9972927**1729**2799
11997292**71729**279911.

9271729
191992**71729**9191
12191992**71729**919121
7121919927**1729**9191217.

729272927
17292729271
12**1729**272927121
1127121**1729**2729271217211.

729272927
17292729271
77**1729**272927177
12177**1729**272927177121.

17292129271
77**1729**212927177
777**1729**2129271777
92777**1729**212927177729.

17299299271
9**1729**92992719
719**1729**9299271917
1719**1729**92992719171.

72997979927
1729979799271
11**1729**97979927111
7211**1729**9797992711127.

99**1729**27199
999**1729**271999
99999**1729**27199999
1999999**1729**2719999991.

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792711**1729**7
99792711**1729**799
1299792711**1729**79921
121299792711**1729**7992121.

927**1729**
11927**1729**11
1197119271**1729**117911

927**1729**
927**1729**27**1729**
1299927**1729**27**1729**921.

927**1729**
1221927**1729**1221
991221927**1729**122199

927**1729**
1979927**1729**9791
191979927**1729**979191.

971222179
7297122217927
1**1729**712221792711.

11927**1729**11
971192**1729**1179
1197119271**1729**117911.

17292729271
12**1729**272927121
112712**1729**2729271217211.

17299299271
9**1729**92992719
129**1729**9299271921.

77927**1729**77
9177927**1729**7719
7791779271**1729**771977.

92927**1729**29
1929271**1729**291
1191929271**1729**291911.

9271191**1729**
119271191**1729**11
1771192711911**1729**11771.

7927191**1729**7
127927191**1729**721
111127927191**1729**721111.

26.3 More Examples

Below are three examples of embedded palprimes with **1729**. These examples are with palprimes **172909271** and **172959271**.

1.

172909271

17290009271

172900000000009271

17290000000000000000009271

1729000000000000000000000000000009271

2.

172959271

1729555555559271

17295555555559271

172955555555555555555555555555555559271

3.

1729 5 9271

32 **1729 5 9271** 23

3132 **1729 5 9271** 2313

323132 **1729 5 9271** 231323

16323132 **1729 5 9271** 23132361

1216323132 **1729 5 9271** 2313236121

741216323132 **1729 5 9271** 231323612147

72741216323132 **1729 5 9271** 23132361214727

3617274121632313 **21729 5 9271** 2313236121472716 3

1236172741216323132 **1729 5 9271** 2313236121472716321

912361727412163231 32 **1729 5 9271** 23132361214727163219

77912361727412163231 32 **1729 5 9271** 231323612147271632197 7

9037791236172741216323132 **1729 5 9271** 2313236121472716321977309

759037791236172741216323132 **1729 5 9271** 23132361214727163219773095 7

13759037791236172741216323132 **1729 5 9271** 231323612147271632197730957 31

… … … …

The first two examples uses extra only numbers 0 and 5. The last example is all digits except 8.

27 Magic Square Type Palprimes

This section brings magic square type **palindromic prime numbers**, sometimes called as **palprimes**, where rows, columns and principal diagonals are also **palprimes**. The embedded properties are also true. Here we have given three examples of order 7×7, where there is symmetry in representations

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1.

9	9	1	9	1	9	9
9	7	3	2	3	7	9
1	3	1	7	1	3	1
9	2	7	**1**	**7**	**2**	**9**
1	3	1	7	1	3	1
9	7	3	2	3	7	9
9	9	1	9	1	9	9

2.

9	7	1	1	1	7	9
1	7	1	2	1	7	1
9	2	1	2	1	2	9
9	2	7	**1**	**7**	**2**	**9**
9	2	1	2	1	2	9
1	7	1	2	1	7	1
9	7	1	1	1	7	9

3.

1	9	9	3	9	9	1
9	2	7	**1**	**7**	**2**	**9**
9	7	7	0	7	7	9
3	1	0	6	0	1	3
9	7	7	0	7	7	9
9	2	7	**1**	**7**	**2**	**9**
1	9	9	3	9	9	1

Below are **extended palprimes** of above three sets of **magic square type palprimes**:

1. 9919199 9732379 1317131 927**1729** 1317131 9732379 9919199;
2. 9711179 1712171 9212129 927**1729** 9212129 17121719 711179;
3. 1993991 927**1729** 9770779 3106013 9770779 927**1729** 1993991.

28 Palindromic Prime Numbers

Palindromic prime numbers are well known in the literature. Below are some palindromic prime numbers using only the digits of **1729**. The number **1729** appears twice in first subsection and trice in second subsection. Obviously, there are much more numbers with **1729** below are written only few.

28.1 Double 1729

927**1729**27**1729**

1299271729271729921
7729271729271729277
9729271729271729279
9229271729271729229

19929271729271729291
71929271729271729217
77779271729271729777
77799271729271729977
77229271729271729277
72729271729271729727

1117992717292717297111
1119792717292717297911
1121292717292717292111
1122992717292717292211
1719792717292717297171

1177927172927172977 11
1122927172927172922 11
1717927172927172971 71
1719927172927172991 71
1771927172927172917 71

7221927172927172912 27
7921927172927172912 97
9111927172927172911 19
9721927172927172912 79
9277927172927172977 29
9991927172927172919 99

1772292717292717229 2771
1217792717292717297 7121
1212192717292717291 2121
1272792717292717297 2721
1227992717292717299 7221

17291**1729**127772192719271
17291**1729**217171292719271
17291**1729**229792292719271
17291**1729**279797292719271
17291**1729**727172792719271

172999**1729**1219271999271
172999**1729**7779271999271
1729117**1729**992717119271
1729121**1729**192711219271
1729171**1729**792711719271

172911992712**1729**9119271
172912992711**1729**9219271
172919992712**1729**9919271
172929192719**1729**1929271
172971292717**1729**2179271

17291**1729**799199792719271
17291**1729**911911992719271
17291**1729**927772992719271
17291**1729**977277992719271
17291**1729**991719992719271

1729172**1729**792712719271
1729192**1729**192712919271
1729222**1729**992712229271
1729711**1729**792711179271
1729712**1729**792712179271

172972992717**1729**9279271
172979292717**1729**2979271
172992292711**1729**2299271
172997292719**1729**2799271
172919927119**1729**919271
172922927127**1729**229271

172911**1729**19291927119271
172911**1729**22922927119271
172911**1729**92729927119271
172921**1729**11111927129271
172921**1729**12921927129271

1729727**1729**192717279271
1729799**1729**192719979271
1729971**1729**292711799271
1729979**1729**792719799271
17291299**1729**27199219271

172922927172**1729**229271
172927927111**1729**729271
172927927172**1729**729271
172977927171**1729**779271
172977927179**1729**779271

172921**1729**29292927129271
172921**1729**99999927129271
172971**1729**29792927179271
172971**1729**77177927179271
172991**1729**29292927199271

17292211**1729**27111229271
17292219**1729**27191229271
17297221**1729**27112279271
17297712**1729**27121779271
17297719**1729**27191779271

172919271929**1729**199271
172997927112**1729**799271
172999927172**1729**999271
172919271711**1729**19271
172919271727**1729**19271

172911**1729**9999271119271
172919**1729**2729271919271
172919**1729**7279271919271
172929**1729**1119271929271
172971**1729**9999271179271

17297929**1729**27192979271
17297977**1729**27177979271
17291112927**1729**21119271
17292122927**1729**22129271
17292771927**1729**17729271

172929271292921729**2**9271
172929271771771729**2**9271
172929271922291729**2**9271
172979271271721729**7**9271
172979271722271729**7**9271

1729771**1729**1119271779271
1729771**1729**7979271779271
1729911**1729**9199271199271
1729971**1729**1219271799271
1729991**1729**1119271999271

1729291292**1729**21929271
1729291792**1729**71929271
17297199927**1729**99179271
17297229927**1729**92279271
17297711927**1729**11779271

1729792717999**1729**79271
1729992719727**9**1729**9**9271
1729992719777**9**1729**9**9271
172992711111111**1729**9271
172992711217121**1729**9271

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17299271199799**1729**9271
17299271217171**1729**9271
17299271221912**1729**9271
17299271299999**1729**9271
17299271779997**1729**9271

17299271791219**1729**9271
17299271792929**1729**9271
17299271921712**1729**9271
17299271972727**1729**9271
17299271979797**1729**9271

17292711117171111**1729**271
17292711122122111**1729**271
17292711179797111**1729**271
17292711212921211**1729**271
17292711221912211**1729**271

17292711711211711**1729**271
17292711719791711**1729**271
17292711721212711**1729**271
17292711779997711**1729**271
17292711911111911**1729**271

17292711912121911**1729**271
17292711917971911**1729**271
17292711992929911**1729**271
17292712111211112**1729**271
17292712112721121**1729**271

17292712122222121**1729**271
17292712171217121**1729**271
17292712172127121**1729**271
17292712177977121**1729**271
17292712199199121**1729**271

17292712222222221**1729**271
17292712297279221**1729**271
17292712719791721**1729**271
17292712722222721**1729**271
17292712727772721**1729**271

17292712729992721**1729**271
17292712777277721**1729**271
17292712779797721**1729**271
17292712797279721**1729**271
17292712799199721**1729**271

17292712997779921**1729**271
17292717121212171**1729**271
17292717127972171**1729**271
17292717179197171**1729**271
17292717217271271**1729**271

17292717721212771**1729**271
17292717729792771**1729**271
17292717771217771**1729**271
17292717917171971**1729**271
17292717992729971**1729**271

172927191299921**1729**271
172927191929291**1729**271
172927191991991**1729**271
172927192911192**1729**271
172927192977792**1729**271

172927192979792**1729**271
172927192999992**1729**271
172927197111179**1729**271
172927197119117**1729**271

172927197291927**1729**271
172927197912197**1729**271
172927199191991**1729**271
172927199211129**1729**271

28.2 Triple 1729

1729271729979927**1729**271
1729271172979271**1729**271
17299927172927172999271

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29 Palindromic-Type: Multiplications

Palindromic numbers are famous by their property that when reading in reverse order the number remains the same. This deals with the numbers such that they are non palindromic but are separated by multiplication. These separations are in such a way that if we remove the operations the remaining numbers turns palindromic. These are called as **palindromic-type**. Below are palindromic-type number with **1729** only on the one side of the expression. obviously, there are much more numbers of this kind. Only few are written.

$$\mathbf{1729}821 \times 128\mathbf{9271} = 1183881 \times 1883811.$$

$$2\mathbf{1729}12 \times 21\mathbf{9271}2 = 1163904 \times 4093611$$
$$2\mathbf{1729}06 \times 60\mathbf{9271}2 = 3091824 \times 4281903.$$

$$\mathbf{1729}9221 \times 1229\mathbf{9271} = 11293881 \times 18839211$$
$$\mathbf{1729}9921 \times 1299\mathbf{9271} = 11839981 \times 18993811$$
$$1\mathbf{1729}622 \times 226\mathbf{9271}1 = 12773802 \times 20837721$$
$$2\mathbf{1729}162 \times 261\mathbf{9271}2 = 13291824 \times 42819231$$
$$2\mathbf{1729}232 \times 232\mathbf{9271}2 = 12363904 \times 40936321$$
$$2\mathbf{1729}264 \times 462\mathbf{9271}2 = 23491824 \times 42819432$$
$$2\mathbf{1729}344 \times 443\mathbf{9271}2 = 23563904 \times 40936532$$
$$2\mathbf{1729}366 \times 663\mathbf{9271}2 = 33691824 \times 42819633$$
$$2\mathbf{1729}456 \times 654\mathbf{9271}2 = 34763904 \times 40936743$$
$$6\mathbf{1729}332 \times 233\mathbf{9271}6 = 35273904 \times 40937253$$
$$6\mathbf{1729}353 \times 353\mathbf{9271}6 = 35273916 \times 61937253$$
$$2\mathbf{1729}568 \times 865\mathbf{9271}2 = 40936954 \times 45963904$$
$$2\mathbf{1729}468 \times 864\mathbf{9271}2 = 42819834 \times 43891824$$
$$6\mathbf{1729}164 \times 461\mathbf{9271}6 = 35273808 \times 80837253$$
$$6\mathbf{1729}374 \times 473\mathbf{9271}6 = 35273928 \times 82937253$$
$$22\mathbf{1729}13 \times 31\mathbf{9271}22 = 11251926 \times 62915211$$
$$25\mathbf{1729}33 \times 33\mathbf{9271}52 = 13361936 \times 63916331$$
$$33\mathbf{1729}23 \times 32\mathbf{9271}33 = 30707553 \times 35570703$$
$$36\mathbf{1729}43 \times 34\mathbf{9271}63 = 33708473 \times 37480733$$
$$90\mathbf{1729}81 \times 18\mathbf{9271}09 = 17208199 \times 99180271$$
$$180\mathbf{1729}7 \times 7\mathbf{9271}081 = 19817027 \times 72071891$$
$$262\mathbf{1729}8 \times 8\mathbf{9271}262 = 28836118 \times 81163882$$
$$344\mathbf{1729}9 \times 9\mathbf{9271}443 = 37855209 \times 90255873$$

$$\mathbf{1729}3221 \times 1223\mathbf{9271} = 112393881 \times 188393211.$$

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$$1\mathbf{1729}1351 \times 1531\mathbf{9271}1 = 126708141 \times 141807621$$
$$1\mathbf{1729}2472 \times 2742\mathbf{9271}1 = 126709352 \times 253907621$$
$$1\mathbf{1729}8887 \times 7888\mathbf{9271}1 = 128898717 \times 717898821$$
$$1\mathbf{1729}7231 \times 1327\mathbf{9271}1 = 121937721 \times 127739121$$
$$1\mathbf{1729}7711 \times 1177\mathbf{9271}1 = 107287821 \times 128782701$$
$$2\mathbf{1729}5241 \times 1425\mathbf{9271}2 = 130936632 \times 236639031$$
$$12\mathbf{1729}642 \times 246\mathbf{9271}21 = 145781602 \times 206187541$$
$$10\mathbf{1729}853 \times 358\mathbf{9271}01 = 110785923 \times 329587011$$
$$11\mathbf{1729}654 \times 456\mathbf{9271}11 = 121675914 \times 419576121$$
$$12\mathbf{1729}455 \times 554\mathbf{9271}21 = 132565905 \times 509565231$$
$$22\mathbf{1729}331 \times 133\mathbf{9271}22 = 112519362 \times 263915211$$
$$23\mathbf{1729}031 \times 130\mathbf{9271}32 = 111618172 \times 271816111$$
$$25\mathbf{1729}541 \times 145\mathbf{9271}52 = 133619472 \times 274916331$$
$$34\mathbf{1729}011 \times 110\mathbf{9271}43 = 101707273 \times 372707101$$
$$81\mathbf{1729}821 \times 128\mathbf{9271}18 = 117218298 \times 892812711$$
$$114\mathbf{1729}12 \times 21\mathbf{9271}411 = 116390512 \times 215093611$$
$$115\mathbf{1729}02 \times 20\mathbf{9271}511 = 105171922 \times 229171501$$
$$167\mathbf{1729}52 \times 25\mathbf{9271}761 = 147518392 \times 293815741$$
$$168\mathbf{1729}42 \times 24\mathbf{9271}861 = 147708382 \times 283807741$$
$$1033\mathbf{1729}4 \times 4\mathbf{9271}3301 = 123937014 \times 410739321$$
$$1081\mathbf{1729}7 \times 7\mathbf{9271}1801 = 118917027 \times 720719811$$
$$1163\mathbf{1729}8 \times 8\mathbf{9271}3611 = 127936118 \times 811639721$$
$$1245\mathbf{1729}9 \times 9\mathbf{9271}5421 = 136955209 \times 902559631$$
$$11138\mathbf{9271} \times \mathbf{1729}83111 = 102283881 \times 188382201$$

30 Palindromic-Type: Addition and Multiplication

This section deals with palindromic-type numbers in little different form. In the above section we worked with the operation multiplication. Here both addition and multiplications are used. These operations are used in such way that we have **1729** on both sides of the expression.

30.1 Sequential Patterns: 1729 Both Sides

Even though there are much more values we have considered only few, where **1729** appears in both sides and forming a sequential pattern.

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$$\mathbf{1729}1 \times 10001 + 10001 \times 1\mathbf{9271} = \mathbf{1729}27291 + 1927\mathbf{29271}$$
$$\mathbf{1729}2 \times 10001 + 10001 \times 2\mathbf{9271} = \mathbf{1729}37292 + 2927\mathbf{39271}$$
$$\mathbf{1729}3 \times 10001 + 10001 \times 3\mathbf{9271} = \mathbf{1729}47293 + 3927\mathbf{49271}$$
$$\mathbf{1729}4 \times 10001 + 10001 \times 4\mathbf{9271} = \mathbf{1729}57294 + 4927\mathbf{59271}$$
$$\mathbf{1729}5 \times 10001 + 10001 \times 5\mathbf{9271} = \mathbf{1729}67295 + 5927\mathbf{69271}$$
$$\mathbf{1729}6 \times 10001 + 10001 \times 6\mathbf{9271} = \mathbf{1729}77296 + 6927\mathbf{79271}$$
$$\mathbf{1729}7 \times 10001 + 10001 \times 7\mathbf{9271} = \mathbf{1729}87297 + 7927\mathbf{89271}$$
$$\mathbf{1729}8 \times 10001 + 10001 \times 8\mathbf{9271} = \mathbf{1729}97298 + 8927\mathbf{99271}$$

$$\mathbf{1729}01 \times 100001 + 100001 \times 10\mathbf{9271} = \mathbf{1729}0272901 + 1092720\mathbf{9271}$$
$$\mathbf{1729}02 \times 100001 + 100001 \times 20\mathbf{9271} = \mathbf{1729}0372902 + 2092730\mathbf{9271}$$
$$\mathbf{1729}03 \times 100001 + 100001 \times 30\mathbf{9271} = \mathbf{1729}0472903 + 3092740\mathbf{9271}$$
$$\mathbf{1729}04 \times 100001 + 100001 \times 40\mathbf{9271} = \mathbf{1729}0572904 + 4092750\mathbf{9271}$$
$$\mathbf{1729}05 \times 100001 + 100001 \times 50\mathbf{9271} = \mathbf{1729}0672905 + 5092760\mathbf{9271}$$
$$\mathbf{1729}06 \times 100001 + 100001 \times 60\mathbf{9271} = \mathbf{1729}0772906 + 6092770\mathbf{9271}$$
$$\mathbf{1729}07 \times 100001 + 100001 \times 70\mathbf{9271} = \mathbf{1729}0872907 + 7092780\mathbf{9271}$$
$$\mathbf{1729}08 \times 100001 + 100001 \times 80\mathbf{9271} = \mathbf{1729}0972908 + 8092790\mathbf{9271}$$

$$\mathbf{1729}11 \times 100001 + 100001 \times 11\mathbf{9271} = \mathbf{1729}1272911 + 1192721\mathbf{9271}$$
$$\mathbf{1729}12 \times 100001 + 100001 \times 21\mathbf{9271} = \mathbf{1729}1372912 + 2192731\mathbf{9271}$$
$$\mathbf{1729}13 \times 100001 + 100001 \times 31\mathbf{9271} = \mathbf{1729}1472913 + 3192741\mathbf{9271}$$
$$\mathbf{1729}14 \times 100001 + 100001 \times 41\mathbf{9271} = \mathbf{1729}1572914 + 4192751\mathbf{9271}$$
$$\mathbf{1729}15 \times 100001 + 100001 \times 51\mathbf{9271} = \mathbf{1729}1672915 + 5192761\mathbf{9271}$$
$$\mathbf{1729}16 \times 100001 + 100001 \times 61\mathbf{9271} = \mathbf{1729}1772916 + 6192771\mathbf{9271}$$
$$\mathbf{1729}17 \times 100001 + 100001 \times 71\mathbf{9271} = \mathbf{1729}1872917 + 7192781\mathbf{9271}$$
$$\mathbf{1729}18 \times 100001 + 100001 \times 81\mathbf{9271} = \mathbf{1729}1972918 + 8192791\mathbf{9271}$$

$$\mathbf{1729}21 \times 100001 + 100001 \times 12\mathbf{9271} = \mathbf{1729}2272921 + 1292722\mathbf{9271}$$
$$\mathbf{1729}22 \times 100001 + 100001 \times 22\mathbf{9271} = \mathbf{1729}2372922 + 2292732\mathbf{9271}$$
$$\mathbf{1729}23 \times 100001 + 100001 \times 32\mathbf{9271} = \mathbf{1729}2472923 + 3292742\mathbf{9271}$$
$$\mathbf{1729}24 \times 100001 + 100001 \times 42\mathbf{9271} = \mathbf{1729}2572924 + 4292752\mathbf{9271}$$
$$\mathbf{1729}25 \times 100001 + 100001 \times 52\mathbf{9271} = \mathbf{1729}2672925 + 5292762\mathbf{9271}$$
$$\mathbf{1729}26 \times 100001 + 100001 \times 62\mathbf{9271} = \mathbf{1729}2772926 + 6292772\mathbf{9271}$$
$$\mathbf{1729}27 \times 100001 + 100001 \times 72\mathbf{9271} = \mathbf{1729}2872927 + 7292782\mathbf{9271}$$
$$\mathbf{1729}28 \times 100001 + 100001 \times 82\mathbf{9271} = \mathbf{1729}2972928 + 8292792\mathbf{9271}$$

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$$\mathbf{1729}31 \times 100001 + 100001 \times 13\mathbf{9271} = \mathbf{1729}3272931 + 1392723\mathbf{9271}$$
$$\mathbf{1729}32 \times 100001 + 100001 \times 23\mathbf{9271} = \mathbf{1729}3372932 + 2392733\mathbf{9271}$$
$$\mathbf{1729}33 \times 100001 + 100001 \times 33\mathbf{9271} = \mathbf{1729}3472933 + 3392743\mathbf{9271}$$
$$\mathbf{1729}34 \times 100001 + 100001 \times 43\mathbf{9271} = \mathbf{1729}3572934 + 4392753\mathbf{9271}$$
$$\mathbf{1729}35 \times 100001 + 100001 \times 53\mathbf{9271} = \mathbf{1729}3672935 + 5392763\mathbf{9271}$$
$$\mathbf{1729}36 \times 100001 + 100001 \times 63\mathbf{9271} = \mathbf{1729}3772936 + 6392773\mathbf{9271}$$
$$\mathbf{1729}37 \times 100001 + 100001 \times 73\mathbf{9271} = \mathbf{1729}3872937 + 7392783\mathbf{9271}$$
$$\mathbf{1729}38 \times 100001 + 100001 \times 83\mathbf{9271} = \mathbf{1729}3972938 + 8392793\mathbf{9271}$$

$$\mathbf{1729}41 \times 100001 + 100001 \times 14\mathbf{9271} = \mathbf{1729}4272941 + 1492724\mathbf{9271}$$
$$\mathbf{1729}42 \times 100001 + 100001 \times 24\mathbf{9271} = \mathbf{1729}4372942 + 2492734\mathbf{9271}$$
$$\mathbf{1729}43 \times 100001 + 100001 \times 34\mathbf{9271} = \mathbf{1729}4472943 + 3492744\mathbf{9271}$$
$$\mathbf{1729}44 \times 100001 + 100001 \times 44\mathbf{9271} = \mathbf{1729}4572944 + 4492754\mathbf{9271}$$
$$\mathbf{1729}45 \times 100001 + 100001 \times 54\mathbf{9271} = \mathbf{1729}4672945 + 5492764\mathbf{9271}$$
$$\mathbf{1729}46 \times 100001 + 100001 \times 64\mathbf{9271} = \mathbf{1729}4772946 + 6492774\mathbf{9271}$$
$$\mathbf{1729}47 \times 100001 + 100001 \times 74\mathbf{9271} = \mathbf{1729}4872947 + 7492784\mathbf{9271}$$
$$\mathbf{1729}48 \times 100001 + 100001 \times 84\mathbf{9271} = \mathbf{1729}4972948 + 8492794\mathbf{9271}$$

$$\mathbf{1729}51 \times 100001 + 100001 \times 15\mathbf{9271} = \mathbf{1729}5272951 + 1592725\mathbf{9271}$$
$$\mathbf{1729}52 \times 100001 + 100001 \times 25\mathbf{9271} = \mathbf{1729}5372952 + 2592735\mathbf{9271}$$
$$\mathbf{1729}53 \times 100001 + 100001 \times 35\mathbf{9271} = \mathbf{1729}5472953 + 3592745\mathbf{9271}$$
$$\mathbf{1729}54 \times 100001 + 100001 \times 45\mathbf{9271} = \mathbf{1729}5572954 + 4592755\mathbf{9271}$$
$$\mathbf{1729}55 \times 100001 + 100001 \times 55\mathbf{9271} = \mathbf{1729}5672955 + 5592765\mathbf{9271}$$
$$\mathbf{1729}56 \times 100001 + 100001 \times 65\mathbf{9271} = \mathbf{1729}5772956 + 6592775\mathbf{9271}$$
$$\mathbf{1729}57 \times 100001 + 100001 \times 75\mathbf{9271} = \mathbf{1729}5872957 + 7592785\mathbf{9271}$$
$$\mathbf{1729}58 \times 100001 + 100001 \times 85\mathbf{9271} = \mathbf{1729}5972958 + 8592795\mathbf{9271}$$

$$\mathbf{1729}61 \times 100001 + 100001 \times 16\mathbf{9271} = \mathbf{1729}6272961 + 1692726\mathbf{9271}$$
$$\mathbf{1729}62 \times 100001 + 100001 \times 26\mathbf{9271} = \mathbf{1729}6372962 + 2692736\mathbf{9271}$$
$$\mathbf{1729}63 \times 100001 + 100001 \times 36\mathbf{9271} = \mathbf{1729}6472963 + 3692746\mathbf{9271}$$
$$\mathbf{1729}64 \times 100001 + 100001 \times 46\mathbf{9271} = \mathbf{1729}6572964 + 4692756\mathbf{9271}$$
$$\mathbf{1729}65 \times 100001 + 100001 \times 56\mathbf{9271} = \mathbf{1729}6672965 + 5692766\mathbf{9271}$$
$$\mathbf{1729}66 \times 100001 + 100001 \times 66\mathbf{9271} = \mathbf{1729}6772966 + 6692776\mathbf{9271}$$
$$\mathbf{1729}67 \times 100001 + 100001 \times 76\mathbf{9271} = \mathbf{1729}6872967 + 7692786\mathbf{9271}$$
$$\mathbf{1729}68 \times 100001 + 100001 \times 86\mathbf{9271} = \mathbf{1729}6972968 + 8692796\mathbf{9271}$$

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$$\mathbf{1729}71 \times 100001 + 100001 \times 17\mathbf{9271} = \mathbf{1729}7272971 + 1792727\mathbf{9271}$$
$$\mathbf{1729}72 \times 100001 + 100001 \times 27\mathbf{9271} = \mathbf{1729}7372972 + 2792737\mathbf{9271}$$
$$\mathbf{1729}73 \times 100001 + 100001 \times 37\mathbf{9271} = \mathbf{1729}7472973 + 3792747\mathbf{9271}$$
$$\mathbf{1729}74 \times 100001 + 100001 \times 47\mathbf{9271} = \mathbf{1729}7572974 + 4792757\mathbf{9271}$$
$$\mathbf{1729}75 \times 100001 + 100001 \times 57\mathbf{9271} = \mathbf{1729}7672975 + 5792767\mathbf{9271}$$
$$\mathbf{1729}76 \times 100001 + 100001 \times 67\mathbf{9271} = \mathbf{1729}7772976 + 6792777\mathbf{9271}$$
$$\mathbf{1729}77 \times 100001 + 100001 \times 77\mathbf{9271} = \mathbf{1729}7872977 + 7792787\mathbf{9271}$$
$$\mathbf{1729}78 \times 100001 + 100001 \times 87\mathbf{9271} = \mathbf{1729}7972978 + 8792797\mathbf{9271}$$

$$\mathbf{1729}81 \times 100001 + 100001 \times 18\mathbf{9271} = \mathbf{1729}8272981 + 1892728\mathbf{9271}$$
$$\mathbf{1729}82 \times 100001 + 100001 \times 28\mathbf{9271} = \mathbf{1729}8372982 + 2892738\mathbf{9271}$$
$$\mathbf{1729}83 \times 100001 + 100001 \times 38\mathbf{9271} = \mathbf{1729}8472983 + 3892748\mathbf{9271}$$
$$\mathbf{1729}84 \times 100001 + 100001 \times 48\mathbf{9271} = \mathbf{1729}8572984 + 4892758\mathbf{9271}$$
$$\mathbf{1729}85 \times 100001 + 100001 \times 58\mathbf{9271} = \mathbf{1729}8672985 + 5892768\mathbf{9271}$$
$$\mathbf{1729}86 \times 100001 + 100001 \times 68\mathbf{9271} = \mathbf{1729}8772986 + 6892778\mathbf{9271}$$
$$\mathbf{1729}87 \times 100001 + 100001 \times 78\mathbf{9271} = \mathbf{1729}8872987 + 7892788\mathbf{9271}$$
$$\mathbf{1729}88 \times 100001 + 100001 \times 88\mathbf{9271} = \mathbf{1729}8972988 + 8892798\mathbf{9271}$$

$$\mathbf{1729}91 \times 100001 + 100001 \times 19\mathbf{9271} = \mathbf{1729}9272991 + 1992729\mathbf{9271}$$
$$\mathbf{1729}92 \times 100001 + 100001 \times 29\mathbf{9271} = \mathbf{1729}9372992 + 2992739\mathbf{9271}$$
$$\mathbf{1729}93 \times 100001 + 100001 \times 39\mathbf{9271} = \mathbf{1729}9472993 + 3992749\mathbf{9271}$$
$$\mathbf{1729}94 \times 100001 + 100001 \times 49\mathbf{9271} = \mathbf{1729}9572994 + 4992759\mathbf{9271}$$
$$\mathbf{1729}95 \times 100001 + 100001 \times 59\mathbf{9271} = \mathbf{1729}9672995 + 5992769\mathbf{9271}$$
$$\mathbf{1729}96 \times 100001 + 100001 \times 69\mathbf{9271} = \mathbf{1729}9772996 + 6992779\mathbf{9271}$$
$$\mathbf{1729}97 \times 100001 + 100001 \times 79\mathbf{9271} = \mathbf{1729}9872997 + 7992789\mathbf{9271}$$
$$\mathbf{1729}98 \times 100001 + 100001 \times 89\mathbf{9271} = \mathbf{1729}9972998 + 8992799\mathbf{9271}$$

30.2 Non Sequential Patterns

Below are two patterns different from the previous subsection. Here they are in such a way that increasing one zero in each line becomes very interesting pattern. Also, the number **1729** is on both sides of the expression.

$$\begin{aligned}
\mathbf{1729} \times 10001 + 10001 \times \mathbf{9271} &= \mathbf{17291729} + \mathbf{92719271} \\
\mathbf{1729} \times 100001 + 100001 \times \mathbf{9271} &= \mathbf{172901729} + \mathbf{9271}09271 \\
\mathbf{1729} \times 1000001 + 1000001 \times \mathbf{9271} &= \mathbf{1729001729} + \mathbf{9271}009271 \\
\mathbf{1729} \times 10000001 + 10000001 \times \mathbf{9271} &= \mathbf{17290001729} + \mathbf{9271}0009271
\end{aligned}$$

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$$\begin{aligned}
11729 \times 100001 + 100001 \times 92711 &= 1172911729 + 9271192711\\
11729 \times 1000001 + 1000001 \times 92711 &= 1172901171 + 9271092711\\
11729 \times 10000001 + 10000001 \times 92711 &= 1172900011729 + 9271000092711.
\end{aligned}$$

Still there is one more non sequential pattern giving same digits on both sides except number 0:

$$\begin{aligned}
10001 \times 1729 + 9271 \times 10001 &= 1729\,1729 + 7291\,7291\\
10001 \times 1927 + 7291 \times 10001 &= 1927\,1927 + 7291\,7291\\
10001 \times 2719 + 9172 \times 10001 &= 2719\,2719 + 9172\,9172\\
10001 \times 2917 + 7192 \times 10001 &= 2917\,2917 + 7192\,7192.
\end{aligned}$$

31 Magic Squares With Sum 1729

Below are magic squares of order 13 and 19 in two different ways. One is bordered magic squares and another is block-wise bordered magic squares. In all the situations the magic is always **1729**. In order to have this sum we have used in some cases the negative values entries. Moreover, the entries are integers as the number 1729 is divisible of 13 and 19. We can have other order magic squares too with the same sum, but the entries shall be decimal or fractional numbers, except the order 3.

31.1 Magic Squares of Order 13

Below are two magic squares of order 13 with magic sum as 1729. One is bordered magic square and second is with inner magic square of order 9 with blocks of order 3.

													1729
204	195	197	199	201	203	205	57	55	53	51	49	60	1729
50	84	92	90	88	86	185	186	188	190	192	82	216	1729
52	193	100	172	170	168	167	104	106	108	102	73	214	1729
54	191	93	116	120	118	153	154	156	114	173	75	212	1729
56	189	95	157	124	121	141	139	140	109	171	77	210	1729
58	187	97	155	144	134	129	136	122	111	169	79	208	1729
59	83	165	115	143	135	133	131	123	151	101	183	207	1729
202	85	163	117	128	130	137	132	138	149	103	181	64	1729
200	87	161	119	126	145	125	127	142	147	105	179	66	1729
198	89	159	152	146	148	113	112	110	150	107	177	68	1729
196	91	164	94	96	98	99	162	160	158	166	175	70	1729
194	184	174	176	178	180	81	80	78	76	74	182	72	1729
206	71	69	67	65	63	61	209	211	213	215	217	62	1729
1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729

The magic sums are given by

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$$S_{3\times3} := 1729 \times \frac{3}{13} = 399 \qquad S_{9\times9} := 1729 \times \frac{9}{13} = 1197$$

$$S_{5\times5} := 1729 \times \frac{5}{13} = 665 \qquad S_{11\times11} := 1729 \times \frac{11}{13} = 1463$$

$$S_{7\times7} := 1729 \times \frac{7}{13} = 931 \qquad S_{13\times13} := 1729 \times \frac{13}{13} = \mathbf{1729}$$

													1729
204	195	197	199	201	203	205	57	55	53	51	49	60	1729
50	84	92	90	88	86	185	186	188	190	192	82	216	1729
52	193	114	163	122	119	156	124	112	161	126	73	214	1729
54	191	127	113	159	120	115	164	125	117	157	75	212	1729
56	189	158	123	118	160	128	111	162	121	116	77	210	1729
58	187	132	100	167	137	93	169	130	98	171	79	208	1729
59	83	172	131	96	165	133	101	170	135	94	183	207	1729
202	85	95	168	136	97	173	129	99	166	134	181	64	1729
200	87	150	145	104	155	138	106	148	143	108	179	66	1729
198	89	109	149	141	102	151	146	107	153	139	177	68	1729
196	91	140	105	154	142	110	147	144	103	152	175	70	1729
194	184	174	176	178	180	81	80	78	76	74	182	72	1729
206	71	69	67	65	63	61	209	211	213	215	217	62	1729
1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729

In this case the magic sums of orders 9, 11 and 13 are as given above. The magic squares of order 3 are **semi-magic** squares with equal **semi-magic** sums. The magic square of order 9 is **pandiagonal**.

31.2 Magic Squares of Order 19

Below are three magic squares of order 19 with magic sum as 1729. One is bordered magic square and another 2 are with inner magic squares of orders 15 with blocks of order 3 and 5.

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																			1729
-70	-54	-56	-58	-60	-62	-64	-66	-68	255	256	258	260	262	264	266	268	270	-72	1729
271	-38	234	232	230	228	226	224	222	221	-34	-32	-30	-28	-26	-24	-22	-36	-89	1729
269	-53	188	177	179	181	183	185	187	189	-11	-13	-15	-17	-19	-21	-8	235	-87	1729
267	-51	-20	162	153	155	157	159	161	163	15	13	11	9	7	18	202	233	-85	1729
265	-49	-18	8	42	50	48	46	44	143	144	146	148	150	40	174	200	231	-83	1729
263	-47	-16	10	151	58	130	128	126	125	62	64	66	60	31	172	198	229	-81	1729
261	-45	-14	12	149	51	74	78	76	111	112	114	72	131	33	170	196	227	-79	1729
259	-43	-12	14	147	53	115	82	79	99	97	98	67	129	35	168	194	225	-77	1729
257	-41	-10	16	145	55	113	102	92	87	94	80	69	127	37	166	192	223	-75	1729
-71	219	-9	17	41	123	73	101	93	91	89	81	109	59	141	165	191	-37	253	1729
-69	217	186	160	43	121	75	86	88	95	90	96	107	61	139	22	-4	-35	251	1729
-67	215	184	158	45	119	77	84	103	83	85	100	105	63	137	24	-2	-33	249	1729
-65	213	182	156	47	117	110	104	106	71	70	68	108	65	135	26	0	-31	247	1729
-63	211	180	154	49	122	52	54	56	57	120	118	116	124	133	28	2	-29	245	1729
-61	209	178	152	142	132	134	136	138	39	38	36	34	32	140	30	4	-27	243	1729
-59	207	176	164	29	27	25	23	21	19	167	169	171	173	175	20	6	-25	241	1729
-57	205	190	5	3	1	-1	-3	-5	-7	193	195	197	199	201	203	-6	-23	239	1729
-55	218	-52	-50	-48	-46	-44	-42	-40	-39	216	214	212	210	208	206	204	220	237	1729
254	236	238	240	242	244	246	248	250	-73	-74	-76	-78	-80	-82	-84	-86	-88	252	1729
1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729

The magic sums are given by

$$S_{3\times 3} := 1729 \times \frac{3}{19} = 273$$

$$S_{5\times 5} := 1729 \times \frac{5}{19} = 455$$

$$S_{7\times 7} := 1729 \times \frac{7}{19} = 637$$

$$S_{9\times 9} := 1729 \times \frac{9}{19} = 819$$

$$S_{11\times 11} := 1729 \times \frac{11}{19} = 1001$$

$$S_{13\times 13} := 1729 \times \frac{13}{19} = 1183$$

$$S_{15\times 15} := 1729 \times \frac{15}{19} = 1365$$

$$S_{17\times 17} := 1729 \times \frac{17}{19} = 1547$$

$$S_{19\times 19} := 1729 \times \frac{19}{19} = \mathbf{1729}$$

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																			1729
-70	-54	-56	-58	-60	-62	-64	-66	-68	255	256	258	260	262	264	266	268	270	-72	1729
271	-38	234	232	230	228	226	224	222	221	-34	-32	-30	-28	-26	-24	-22	-36	-89	1729
269	-53	-21	196	8	97	175	9	166	53	82	145	24	136	68	112	115	235	-87	1729
267	-51	98	187	-20	189	1	83	157	10	159	46	113	127	25	129	61	233	-85	1729
265	-49	190	-6	91	188	-8	160	39	76	158	22	130	54	106	128	37	231	-83	1729
263	-47	181	-7	202	-5	84	151	23	172	40	69	121	38	142	55	99	229	-81	1729
261	-45	7	85	174	-14	203	52	70	144	16	173	67	100	114	31	143	227	-79	1729
259	-43	-19	195	6	95	178	11	165	51	80	148	26	135	66	110	118	225	-77	1729
257	-41	96	185	-17	191	0	81	155	13	161	45	111	125	28	131	60	223	-75	1729
-71	219	193	-4	90	186	-10	163	41	75	156	20	133	56	105	126	35	-37	253	1729
-69	217	180	-9	200	-2	86	150	21	170	43	71	120	36	140	58	101	-35	251	1729
-67	215	5	88	176	-15	201	50	73	146	15	171	65	103	116	30	141	-33	249	1729
-65	213	-18	197	4	93	179	12	167	49	78	149	27	137	64	108	119	-31	247	1729
-63	211	94	183	-16	192	2	79	153	14	162	47	109	123	29	132	62	-29	245	1729
-61	209	194	-3	92	184	-12	164	42	77	154	18	134	57	107	124	33	-27	243	1729
-59	207	182	-11	198	-1	87	152	19	168	44	72	122	34	138	59	102	-25	241	1729
-57	205	3	89	177	-13	199	48	74	147	17	169	63	104	117	32	139	-23	239	1729
-55	218	-52	-50	-48	-46	-44	-42	-40	-39	216	214	212	210	208	206	204	220	237	1729
254	236	238	240	242	244	246	248	250	-73	-74	-76	-78	-80	-82	-84	-86	-88	252	1729
1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729

In this case the magic sums of orders 15, 17 and 19 are as given above. The magic squares of order 5 are **pandiagonals** of equal magic sums. The magic sum of order 5 is the same as of given above. The magic square of order 15 is also **pandiagonal**

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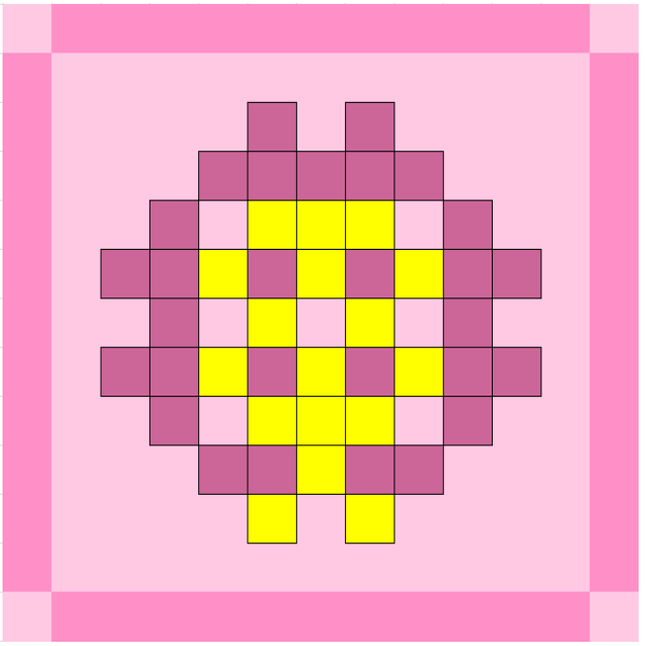
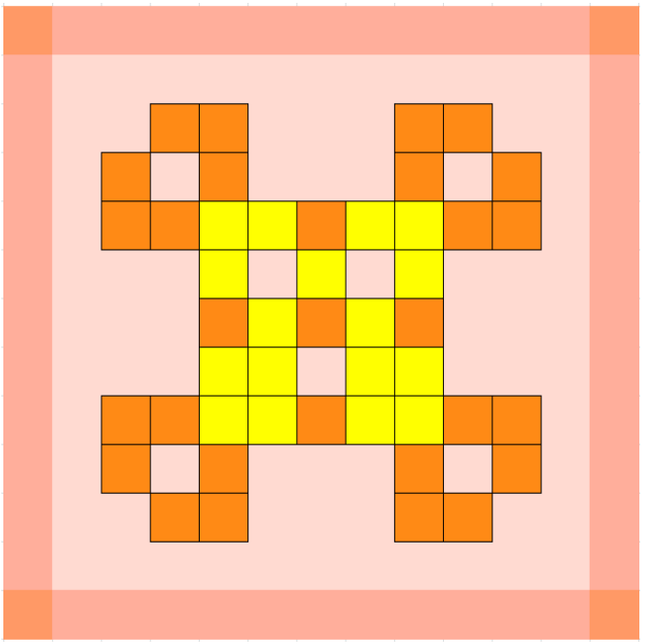
																			1729
-70	-54	-56	-58	-60	-62	-64	-66	-68	255	256	258	260	262	264	266	268	270	-72	1729
271	-38	234	232	230	228	226	224	222	221	-34	-32	-30	-28	-26	-24	-22	-36	-89	1729
269	-53	164	43	66	165	52	56	166	53	54	167	42	64	168	40	65	235	-87	1729
267	-51	58	171	44	67	161	45	68	159	46	57	169	47	55	170	48	233	-85	1729
265	-49	51	59	163	41	60	172	39	61	173	49	62	162	50	63	160	231	-83	1729
263	-47	14	178	81	15	187	71	16	188	69	17	177	79	18	175	80	229	-81	1729
261	-45	73	21	179	82	11	180	83	9	181	72	19	182	70	20	183	227	-79	1729
259	-43	186	74	13	176	75	22	174	76	23	184	77	12	185	78	10	225	-77	1729
257	-41	-16	193	96	-15	202	86	-14	203	84	-13	192	94	-12	190	95	223	-75	1729
-71	219	88	-9	194	97	-19	195	98	-21	196	87	-11	197	85	-10	198	-37	253	1729
-69	217	201	89	-17	191	90	-8	189	91	-7	199	92	-18	200	93	-20	-35	251	1729
-67	215	134	28	111	135	37	101	136	38	99	137	27	109	138	25	110	-33	249	1729
-65	213	103	141	29	112	131	30	113	129	31	102	139	32	100	140	33	-31	247	1729
-63	211	36	104	133	26	105	142	24	106	143	34	107	132	35	108	130	-29	245	1729
-61	209	149	-2	126	150	7	116	151	8	114	152	-3	124	153	-5	125	-27	243	1729
-59	207	118	156	-1	127	146	0	128	144	1	117	154	2	115	155	3	-25	241	1729
-57	205	6	119	148	-4	120	157	-6	121	158	4	122	147	5	123	145	-23	239	1729
-55	218	-52	-50	-48	-46	-44	-42	-40	-39	216	214	212	210	208	206	204	220	237	1729
254	236	238	240	242	244	246	248	250	-73	-74	-76	-78	-80	-82	-84	-86	-88	252	1729
1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729	1729

In this case the magic sums of orders 15, 17 and 19 are as given above. The magic squares of order 3 are **semi-magic** squares with equal **semi-magic** sums. The magic square of order 15 is **pandiagonal**.

32 Colored Pattern Designs With 17-29

Below are few patterns on 1729 with two colors having 17 and 29. These colors are on a board of 9×9.





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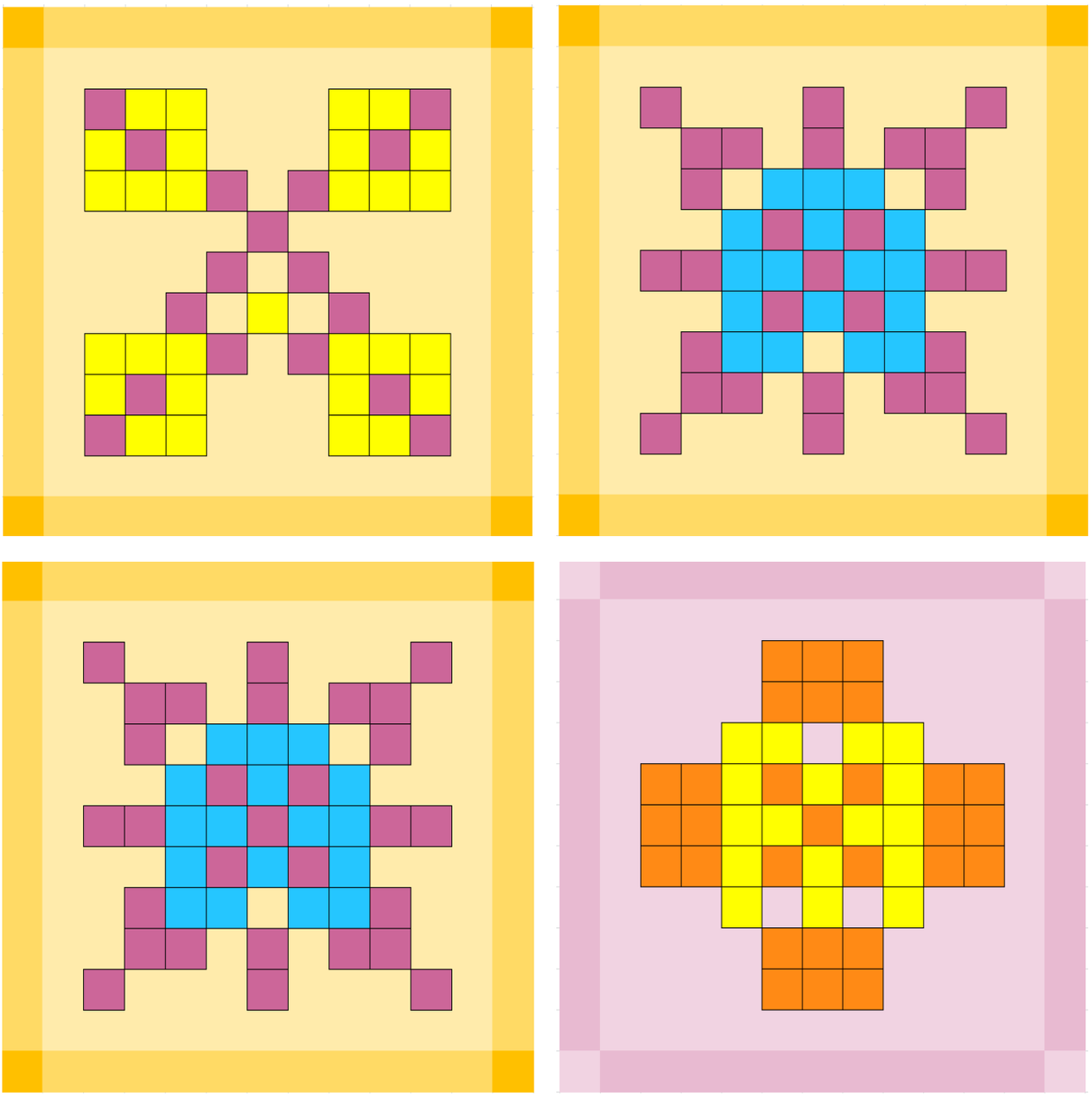

Above we have written only 6 different designs, but there are much more possibilities.

33 Appendix: Numbers in Terms of 17291729 and Reverse

Below are numbers from 1 to 1729 written in terms of digits of **1729** used twice, i.e., **17291729**only with the operations **addition, subtraction** and **multiplication**. There are lot of **extra brackets** in the reverse order. These can be removed after simplifications.

$$\begin{aligned}
\mathbf{1} &:= 17-29-1+7-2+9 && = 9271/9271\\
\mathbf{2} &:= 17-(29-17)\times 2+9 && = (92-71)+((9-27)-1)\\
\mathbf{3} &:= 1\times 72-91-7+29 && = (92-(71-9))-(27\times 1)\\
\mathbf{4} &:= 1+72-91-7+29 && = 9+((2-7)\times(1^{9271}))
\end{aligned}$$

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$$\begin{aligned}
\mathbf{5} &:= 17-2-91+72+9 && = (9+(2-7))+(1^{9271})\\
\mathbf{6} &:= 17\times 2-91+72-9 && = (9+27)-((19\times 2)-(7+1))\\
\mathbf{7} &:= 1+7+2+9+17-29 && = (92+7)-((19+2)+71)\\
\mathbf{8} &:= (1+7)\times(-2-9-17+29) && = ((9-27)\times(1^{9}))+(27-1)\\
\mathbf{9} &:= 17+2-91+72+9 && = ((9-27)-((1^{9})-27))+1
\end{aligned}$$

$$\begin{aligned}
\mathbf{10} &:= -1+7\times 2+9+17-29 && = (9+2)-((7+19)/(27-1))\\
\mathbf{11} &:= 17+29-17-2\times 9 && = ((92-71)-(9^{2}))+71\\
\mathbf{12} &:= 17-2+9+17-29 && = (9\times 2)-(7-(1^{9271}))\\
\mathbf{13} &:= 1\times 7-29-1+7+29 && = 92-((7+(1^{92}))+71)\\
\mathbf{14} &:= 1+7-29-1+7+29 && = 9-((2-7)\times(1^{9271}))\\
\mathbf{15} &:= 17\times 2-9+1+7-2\times 9 && = ((9+(27\times 1))-92)+71\\
\mathbf{16} &:= 17+2+9+17-29 && = ((92+(7-1))-9)-(2+71)\\
\mathbf{17} &:= -17+2+9+1-7+29 && = (9+(27-(1-9)))-(27\times 1)\\
\mathbf{18} &:= 17-2-9-17+29 && = ((9-(2+(71-9)))+2)+71\\
\mathbf{19} &:= 17\times 2-9-17+2+9 && = 9+((2+7)+(1^{9271}))\\
\mathbf{20} &:= 17-2\times 9-1-7+29 && = ((9+(27+1))+9)-(27-1)\\
\mathbf{21} &:= -1+7\times 2+9+17-2\times 9 && = (9-(2-7))-((19-27)+1)\\
\mathbf{22} &:= 17+29-17+2-9 && = (92-7)+((1+9)-(2+71))\\
\mathbf{23} &:= 17-29+17+2\times 9 && = (9-(2-7))-((19-27)-1)\\
\mathbf{24} &:= 17\times 2-91+72+9 && = (9\times 2)+(7-(1^{9271}))\\
\mathbf{25} &:= 1+7+29+17-29 && = ((9\times 2)+7)+((1^{927})-1)\\
\mathbf{26} &:= 17\times 2-9-17+2\times 9 && = 92-((71-(9+(2-7)))-1)\\
\mathbf{27} &:= 17-2-9-1-7+29 && = (9-(27-19))\times(27\times 1)\\
\mathbf{28} &:= 1+7-2\times(9-1)+7+29 && = 92+((7\times(1^{92}))-71)\\
\mathbf{29} &:= 17+2+91-72-9 && = (92+7)+((1^{92})-71)\\
\mathbf{30} &:= (1-7+2+9)\times(17-2-9) && = (((9-2)+7)-19)\times((2-7)-1)\\
\mathbf{31} &:= 1+7+2+9-17+29 && = 9+(((27-19)\times 2)+(7-1))\\
\mathbf{32} &:= 17-2\times(-9+1+7-2)+9 && = (((9-27)-19)-2)+71\\
\mathbf{33} &:= -17+29-1-7+29 && = (9^{2})-((7-19)\times(2-(7-1)))\\
\mathbf{34} &:= 17+29+17-29 && = 92-(((7+19)\times 2)+(7-1))\\
\mathbf{35} &:= 1-7+29-17+29 && = 9+(27-(1^{9271}))\\
\mathbf{36} &:= 17+29-17-2+9 && = (9-27)-(19-(2+71))\\
\mathbf{37} &:= 1\times 7+2+9+1+7+2+9 && = (9+(2-7))+(19+((2\times 7)\times 1))\\
\mathbf{38} &:= 17-(2+9-17)\times 2+9 && = ((92-7)-(19+27))-1\\
\mathbf{39} &:= 1+7-2+9+1+7\times 2+9 && = ((92-7)-(19+27))\times 1\\
\mathbf{40} &:= 17+29-17+2+9 && = 92-((7+19)+(27-1))\\
\mathbf{41} &:= -1+7-2-9+17+29 && = (9-2)+(7-((1^{9})-(27+1)))
\end{aligned}$$

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$$
\begin{aligned}
\mathbf{42} &:= 17+29\times 1+7-2-9 && = 9-((2-71)+((9+27)\times 1))\\
\mathbf{43} &:= 17-2+91-72+9 && = 92-7^{1^{927}+1}\\
\mathbf{44} &:= (-17+2\times 9+1)\times(-7+29) && = (9^2)-((((71-9)/2)+7)-1)\\
\mathbf{45} &:= 17+2-9+17+2\times 9 && = 92-(((7-19)\times 2)+71)\\
\mathbf{46} &:= 17-2+9\times 1-7+29 && = (((9+2)+71)-9)-(27\times 1)\\
\mathbf{47} &:= 1+72+9+1-7-29 && = ((9+27)+(19-2))-(7-1)\\
\mathbf{48} &:= (1+7)\times(-29+17+2\times 9) && = (9\times(2+7))+((19\times 2)-71)\\
\mathbf{49} &:= 17\times 2-9+17-2+9 && = (9\times 2)+(((7+19)-(2-7))\times 1)\\
\mathbf{50} &:= 17+(29-17)\times 2+9 && = (9+2)-((7-(19+27))\times 1)\\
\mathbf{51} &:= 17-29\times 1+72-9 && = (9+(2+7))-((19\times 2)-71)\\
\mathbf{52} &:= 17+29+17-2-9 && = (92-7)+((19\times 2)-71)\\
\mathbf{53} &:= 17+2-9+17\times 2+9 && = (92+7)-(19+(27\times 1))\\
\mathbf{54} &:= 17+2-9-1+(7-2)\times 9 && = (9-((27+1)-9))+2^{7-1}\\
\mathbf{55} &:= 17+2\times(9+1)+7+2+9 && = ((9+2)\times 7)-(1+(92-71))\\
\mathbf{56} &:= 17+2-9+17+29 && = (92-(71-9))+(27-1)\\
\mathbf{57} &:= (1+7)\times 2\times(9-1-7+2)+9 && = 9-((2-71)+(92-71))\\
\mathbf{58} &:= 17+29-17+29 && = ((9\times 2)-(7-(19+27)))+1\\
\mathbf{59} &:= -1+7+29+17-2+9 && = 9-(2-((71+(9-27))-1))\\
\mathbf{60} &:= 1+7+29+1-7+29 && = (9\times(27-19))-(2\times(7-1))\\
\mathbf{61} &:= 1+7-29+1+72+9 && = (((9+2)+71)-92)+71\\
\mathbf{62} &:= 1+7\times(-2+9)-17+29 && = (9\times 2)+((7+(1+(9+27)))\times 1)\\
\mathbf{63} &:= 1+72-9-1-7-2+9 && = ((92+(71-92))-7)-1\\
\mathbf{64} &:= (1+72-9)\times(1+7+2-9) && = ((92+(71-92))-7)\times 1\\
\mathbf{65} &:= 1+72-9+1+7+2-9 && = ((92+(71-92))-7)+1\\
\mathbf{66} &:= 1+7\times(2+9)+17-29 && = (9+27)+((19\times 2)-(7+1))\\
\mathbf{67} &:= -1-7+29+17+29 && = (((9-27)+1)+(92-7))-1\\
\mathbf{68} &:= -1+7\times 2+9+17+29 && = (((9-27)+1)+(92-7))\times 1\\
\mathbf{69} &:= 17-29\times 1+72+9 && = (((9-27)+1)+(92-7))+1\\
\mathbf{70} &:= 17+29+17-2+9 && = ((9+(2\times(7+19)))+2)+(7\times 1)\\
\mathbf{71} &:= 17\times 2-9+17+29 && = (9+(27-(1-9)))+(27\times 1)\\
\mathbf{72} &:= 1-7-2+91+7-2\times 9 && = ((9+(27+1))+9)+(27-1)\\
\mathbf{73} &:= -1-7+2\times 9\times 1+72-9 && = (9^2)-(7+(1^{9271}))\\
\mathbf{74} &:= 17+29+17+2+9 && = (9-27)+(19+(2+71))\\
\mathbf{75} &:= 1\times 72-9-17+29 && = (9^2)-(7-(1^{9271}))\\
\mathbf{76} &:= 172-91-7\times 2+9 && = ((92-7)+(19-27))-1\\
\mathbf{77} &:= 1+(-72+91)\times(-7+2+9) && = 92+(71-((92-7)+1))\\
\mathbf{78} &:= 1\times 72+9+1+7-2-9 && = ((92+7)\times 1)-(92-71)\\
\mathbf{79} &:= 1+7-2-9+1+72+9 && = ((92+(71-92))+7)+1\\
\mathbf{80} &:= 1\times 72-9-1+7+2+9 && = (9\times(2+7))-(1^{9271})
\end{aligned}
$$

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$$\begin{aligned}
\mathbf{81} &:= 17+2\times 9+17+29 && = 92-(((71+9)+2)-71)\\
\mathbf{82} &:= (1+72+9)\times(1+7+2-9) && = (9+27)+(19+(27\times 1))\\
\mathbf{83} &:= 1+72+9+1+7+2-9 && = (92-7)-((1^{927})+1)\\
\mathbf{84} &:= 1\times 72+9-1-7+2+9 && = 92-(7+(1^{9271}))\\
\mathbf{85} &:= -1\times 7+2+(-9+17+2)\times 9 && = 92-(7\times(1^{9271}))\\
\mathbf{86} &:= -1\times 7+2+9+1+72+9 && = ((9+27)-19)-(2-71)\\
\mathbf{87} &:= 1+7\times 2-9\times 1+72+9 && = (92-7)+((1^{927})+1)\\
\mathbf{88} &:= 1+72-9-1+7+2\times 9 && = ((9+2)+(71-9))+((2\times 7)+1)\\
\mathbf{89} &:= (-17+29)\times(1+7)+2-9 && = (9^2)+(7+(1^{9271}))\\
\mathbf{90} &:= (-1+7)\times((29-17)\times 2-9) && = 9\times((2+7)+(1^{9271}))\\
\mathbf{91} &:= 1\times 72-9+17+2+9 && = (9-(27-(19\times 2)))+71\\
\mathbf{92} &:= 17+29+17+29 && = ((9-(2+7))+19)+(2+71)\\
\mathbf{93} &:= 17+(2\times 9+1)\times(-7+2+9) && = 92+((7+19)/(27-1))\\
\mathbf{94} &:= 1+72+9-17+29 && = (92-((71-92)/7))-1\\
\mathbf{95} &:= -1+7-2+9+1+72+9 && = (92-((71-92)/7))\times 1\\
\mathbf{96} &:= 1\times 7-2+91+7+2-9 && = (92-((71-92)/7))+1\\
\mathbf{97} &:= 1+72+9+1+7-2+9 && = (92+7)-((1^{927})+1)\\
\mathbf{98} &:= 17+2\times(9+17)+29 && = (92-(((7\times 1)\times 9)+2))+71\\
\mathbf{99} &:= 1\times 72-9\times 1+7+29 && = 92+(7\times(1^{9271}))
\end{aligned}$$

$$\begin{aligned}
\mathbf{100} &:= 1+72-9\times 1+7+29 && = (((9+2)+71)-9)+(27\times 1)\\
\mathbf{101} &:= 1-72-9+172+9 && = (((9^2)-7)+((19+2)+7))-1\\
\mathbf{102} &:= 1\times 7\times(2+9)+(1+7)\times 2+9 && = (((9^2)-7)+((19+2)+7))\times 1\\
\mathbf{103} &:= (-17+29)\times(1+7)-2+9 && = (9-(27-192))-71\\
\mathbf{104} &:= (-1\times 72+91)\times 7-29 && = ((92+7)/((1^9)+2))+71\\
\mathbf{105} &:= 1\times 72+9+17-2+9 && = (9-27)-(19-(2\times 71))\\
\mathbf{106} &:= 1+7+(-2+9)\times(1\times 7-2+9) && = (92-71)+(92-(7\times 1))\\
\mathbf{107} &:= -1+7+(29+17)\times 2+9 && = (92-(7-1))+(92-71)\\
\mathbf{108} &:= -1\times 7+2+91-7+29 && = 92+(((7-19)+27)+1)\\
\mathbf{109} &:= 172-(9-1)\times 7+2-9 && = ((9-(27\times 1))\times 9)+271\\
\mathbf{110} &:= 1-7+2\times(9\times 1-7)\times 29 && = 92+(71+((9\times 2)-71))\\
\mathbf{111} &:= 172+9\times(1-7)+2-9 && = (((92-7)+(1+(9\times 2)))+7)\times 1\\
\mathbf{112} &:= -1+7-2-9+(-1+7\times 2)\times 9 && = (9-2)+(((7\times 19)-27)-1)\\
\mathbf{113} &:= -1+7-2+91+7+2+9 && = 9+(27-(1-(9-(2-71))))\\
\mathbf{114} &:= -1-72+(91+7)\times 2-9 && = ((9+(2\times 71))-9)-(27+1)\\
\mathbf{115} &:= 17\times(-2+9)\times 1+7-2-9 && = (((92-7)-(1-9))\times 2)-71\\
\mathbf{116} &:= 1-7+2\times(9+1)\times 7-2\times 9 && = ((927-(1^9))+2)/(7+1)\\
\mathbf{117} &:= 172-9-17-29 && = (9+(271-92))-71
\end{aligned}$$

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$\mathbf{118} := 1\times 7-2+91-7+29 = (927+(19-2))/(7+1)$

$\mathbf{119} := -17+2+9-1+7\times 2\times 9 = (92+((7-1)\times 9))-(27\times 1)$

$\mathbf{120} := 17-2+91+7-2+9 = ((92+7)\times 1)+(92-71)$

$\mathbf{121} := -1-7+2+91+7+29 = (9+27)-(1-(92-(7-1)))$

$\mathbf{122} := -1\times 7+2+91+7+29 = (9+(((27\times 1)+92)-7))+1$

$\mathbf{123} := 1-7+2+91+7+29 = 92+(7+(192/(7+1)))$

$\mathbf{124} := -1+72-9-1+72-9 = ((9+(27\times 1))+((9^2)+7))\times 1$

$\mathbf{125} := 172+9\times(1-7)-2+9 = (((9^2)+7)+(1+9))+(27\times 1)$

$\mathbf{126} := -1\times 7-2+9\times 17-2\times 9 = (92+71)-((9+27)+1)$

$\mathbf{127} := 17+29\times 1+72+9 = ((9+(2+7))\times(1-9))+271$

$\mathbf{128} := 1-7-2+91+(7-2)\times 9 = (92+(71-9))-(27-1)$

$\mathbf{129} := 1+7+(-2+9+1)\times 7\times 2+9 = (9^2)+((7\times(19-2))-71)$

$\mathbf{130} := 1+7-2+9\times 17-29 = ((92-7)-19)+2^{7-1}$

$\mathbf{131} := 17\times(-2+9)-17+29 = ((92-7)+(19\times 2))+(7+1)$

$\mathbf{132} := 17-2\times 9\times(1-7)-2+9 = (92-7)+((19+27)+1)$

$\mathbf{133} := 17+2+91+7\times 2+9 = 9-((2^7)+(19-271))$

$\mathbf{134} := 172-(9-1)\times 7+2\times 9 = 9+((2\times 71)+(9-(27-1)))$

$\mathbf{135} := (17\times 2-91+72)\times 9 = (9\times 27)+((19-(2^7))+1)$

$\mathbf{136} := (1-7-29+1)\times(7-2-9) = (9+27)+(((1+92)+7)\times 1)$

$\mathbf{137} := 1+7+2+91+7+29 = (((9\times 2)\times 7)+19)-((2+7)-1)$

$\mathbf{138} := -(1+7)\times 2+91+72-9 = ((9+2)\times 71)-((92\times 7)-1)$

$\mathbf{139} := 1-7-29-(1-7)\times 29 = (9+2)+((7+192)-71)$

$\mathbf{140} := 1\times 72+91-7\times 2-9 = (((9+(2^7))-1)+((9+2)-7))\times 1$

$\mathbf{141} := 1\times 7-29+172-9 = 92+((71-9)-((2\times 7)-1))$

$\mathbf{142} := 1+7-29+172-9 = (92+71)-(92-71)$

$\mathbf{143} := 1\times 72-9-1+72+9 = ((9+(271-9))-(2^7))\times 1$

$\mathbf{144} := (1+7)\times(2-9+17\times 2-9) = ((9+(271-9))-(2^7))+1$

$\mathbf{145} := 17+2+9\times(17-2)-9 = 92+((71-(9+2))-(7\times 1))$

$\mathbf{146} := (-1+72)\times 9-17\times 29 = ((9+2)+(71-9))+(2+71)$

$\mathbf{147} := -1+7\times 2+9-1+7\times 2\times 9 = ((9+2)\times 7)-((1^{92})-71)$

$\mathbf{148} := (17+2)\times 9-1+7-29 = (92-7)-((1+(9-2))-71)$

$\mathbf{149} := 1-7+29+1\times 7\times 2\times 9 = 92-((7\times 1)+(9-(2+71)))$

$\mathbf{150} := (17-2)\times(9+1+7+2-9) = (92+71)-(9-((2-7)+1))$

$\mathbf{151} := 1\times 7-2+9\times 17+2-9 = (((9\times 27)-19)-2)-71$

$\mathbf{152} := 1-7+(2+9)\times 17-29 = 9-((27-(19\times(2+7)))+1)$

$\mathbf{153} := 1\times 7+2\times 91-7-29 = (9-(2^7))+((1^9)+271)$

$\mathbf{154} := 1+7+2\times 91-7-29 = (9-2)+((7\times 19)+(2\times(7\times 1)))$

$\mathbf{155} := 1\times 7+2+9\times 17+2-9 = ((9\times 27)-19)+(2-71)$

$\mathbf{156} := -17-29-1+7\times 29 = 92-((7\times(1^{92}))-71)$

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$\mathbf{157} := 172-9-17+2+9 = (9+27)+(192-71)$

$\mathbf{158} := 1\times 72+91-7\times 2+9 = (92+71)-(9+((2-7)+1))$

$\mathbf{159} := 172+9+1-7\times 2-9 = (92-(71-9))+((2^7)+1)$

$\mathbf{160} := 1+7-29+172+9 = (92+71)-((9+(2-7))-1)$

$\mathbf{161} := 1\times 72+9-1+72+9 = (9\times((27-19)+2))+71$

$\mathbf{162} := -1-7-2-9+172+9 = (9\times 2)-((7-19)\times(2\times(7-1)))$

$\mathbf{163} := 17+2\times 91-7-29 = 92-((((7-19)+2)\times 7)-1)$

$\mathbf{164} := 1-7-2-9+172+9 = 92+((7-19)\times((2-7)-1))$

$\mathbf{165} := 1\times 7-2+9\times 17-2+9 = (9\times(27+1))-((9^2)+(7-1))$

$\mathbf{166} := (-1+7)\times 2-9+172-9 = (9-(27-192))-(7+1)$

$\mathbf{167} := (-17-2+91+7)\times 2+9 = (92+71)-(9-((2\times 7)-1))$

$\mathbf{168} := 1\times 7\times 2+91+72-9 = (92+71)+(9+((2-7)+1))$

$\mathbf{169} := 17-2-9+172-9 = (9+((27\times 1)-9))+(2\times 71)$

$\mathbf{170} := 1-7\times 2+9-(1-7)\times 29 = (92+(7\times(1^{92})))+71$

$\mathbf{171} := -1+7+291-7\times 2\times 9 = (9-((2^7)-19))+271$

$\mathbf{172} := 1-7+(29-1)\times 7-2\times 9 = ((9\times 2)+7)+((19+2)\times(7\times 1))$

$\mathbf{173} := 1\times 72+9\times(1+7)+29 = (92+((7-1)\times 9))+(27\times 1)$

$\mathbf{174} := -1-7-(2-9)\times(1+7+2\times 9) = (9+((2+7)\times 19))+((2-7)-1)$

$\mathbf{175} := 172-9-17+29 = ((9+2)\times(7\times 1))+(92+(7-1))$

$\mathbf{176} := -1+7-2+9+172-9 = (((927\times 1)/9)+2)+71$

$\mathbf{177} := 1+7\times 2+9\times 1\times(7+2+9) = (92-((7-19)-2))+71$

$\mathbf{178} := 17+2+(91-7)\times 2-9 = ((9+27)\times(1^9))+(2\times 71)$

$\mathbf{179} := (1+7+2+91-7)\times 2-9 = (9\times(27+1))-(9+2^{7-1})$

$\mathbf{180} := (1-7)\times(2-9-1+7-29) = (9-(27-192))+(7-1)$

$\mathbf{181} := 1\times 72+91+7+2+9 = (9\times 2)-(71-(9\times(27-1)))$

$\mathbf{182} := 172+91-72-9 = (9-(27-192))+(7+1)$

$\mathbf{183} := 1\times 7-2-9+17\times(2+9) = (92-((7+1)-(92+7)))\times 1$

$\mathbf{184} := 172-9-1-7+29 = (92-(71-92))+71$

$\mathbf{185} := 1\times 7+(29-1)\times 7-2\times 9 = 9+(((2\times 7)-1)+(92+71))$

$\mathbf{186} := 1+72+91-7+29 = (9+(2\times 71))+(9+(27-1))$

$\mathbf{187} := 172+9+17-2-9 = 9+((2^7)-(19+(2-71)))$

$\mathbf{188} := (1+7)\times 2+91+72+9 = ((9\times 2)+(71+92))+(7\times 1)$

$\mathbf{189} := 1\times 72+9-(1-7)\times 2\times 9 = ((9\times(2\times 7))-(1+9))+(2+71)$

$\mathbf{190} := 17-29-1+7\times 29 = ((9+2^{7+1})-(9^2))+(7-1)$

$\mathbf{191} := 172-9+17+2+9 = (92+7)+((19+2)+71)$

$\mathbf{192} := 1+7\times 29+17-29 = (9+(271-((9^2)+7)))\times 1$

$\mathbf{193} := -17+291-72-9 = (9+(271-((9^2)+7)))+1$

$\mathbf{194} := (17+2)\times 9+1-7+29 = (((9^2)-7)+1)-(9-((2^7)\times 1))$

$\mathbf{195} := 17+2\times 91+7-2-9 = (9+271)-(92-(7\times 1))$

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$\mathbf{196} := 1\times 72+9\times 17-29 = (9-2)\times(7\times(19-((2\times 7)+1)))$

$\mathbf{197} := 1-7+29-(1-7)\times 29 = 92+(((7\times 19)-27)-1)$

$\mathbf{198} := -1+7+2\times(91+7\times 2-9) = (9-2)-((71+9)-271)$

$\mathbf{199} := 1\times 7+29+172-9 = (9+(27\times 1))+(92+71)$

$\mathbf{200} := 1+7+29+172-9 = (92+71)+((9+27)+1)$

$\mathbf{201} := 17-2\times 9-1+7\times 29 = (((9\times(27+19))/2)-7)+1$

$\mathbf{202} := 17-2+(91+7)\times 2-9 = (9+2)-((71+9)-271)$

$\mathbf{203} := 172+(9-1)\times(7-2)-9 = ((9\times 2)\times 7)-((1-9)+(2-71))$

$\mathbf{204} := 172+9+1-7+29 = (9+((2+7)+192))-(7-1)$

$\mathbf{205} := 17\times 2+(91-72)\times 9 = (92-7)-((1-9)\times((2\times 7)+1))$

$\mathbf{206} := -1-7+2+9\times 1+7\times 29 = (((9\times 27)-1)-9)-(27\times 1)$

$\mathbf{207} := -1\times 7-2\times 9+(1+7)\times 29 = (9+(2^7))-((1^{92})-71)$

$\mathbf{208} := 1+7\times 2\times 9\times 1+(7+2)\times 9 = (92-(7+19))+(2\times 71)$

$\mathbf{209} := 17+29+172-9 = (9+(2^7))+((1^{92})+71)$

$\mathbf{210} := -1+7+2\times 91-7+29 = ((9+27)-(1^{92}))\times(7-1)$

$\mathbf{211} := -1\times 7+2\times 91+7+29 = (9\times 27)-(192/(7-1))$

$\mathbf{212} := 17+2-9-1+7\times 29 = ((92\times 7)-(19^2))-71$

$\mathbf{213} := (1-7+2)\times(-9+1)\times 7-2-9 = ((9-(2-7))+192)+(7\times 1)$

$\mathbf{214} := 17\times 2+9+(17+2)\times 9 = (9^2)-((7\times 1)\times(9-(27+1)))$

$\mathbf{215} := 1-7+29\times(1+7)-2-9 = ((9-27)-1)+(9\times(27-1))$

$\mathbf{216} := (1-7+2)\times(9\times 1-72+9) = (9+((2+7)+192))+(7-1)$

$\mathbf{217} := 172+9\times 1+7+29 = ((9-27)\times((1-9)\times 2))-71$

$\mathbf{218} := -1\times 7\times 2-(9-17)\times 29 = ((9+27)\times(1+9))-(2\times 71)$

$\mathbf{219} := 1-7\times 2-(9-17)\times 29 = (92+71)+((9-2)\times(7+1))$

$\mathbf{220} := -1+7\times 2+(9\times 1+7\times 2)\times 9 = ((9+271)+9)+(2-71)$

$\mathbf{221} := 172+(9-1)\times(7-2)+9 = (92-7)+((19-2)\times(7+1))$

$\mathbf{222} := 1-7+291-72+9 = ((9+27)+192)-(7-1)$

$\mathbf{223} := 1\times 7+29+17\times(2+9) = (92+71)-(9+(2-71))$

$\mathbf{224} := -1\times 7+29-1+7\times 29 = ((9\times 2)+(7+192))+(7\times 1)$

$\mathbf{225} := 1\times 7+2\times 91+7+29 = (9-27)+(1+((9\times 27)-1))$

$\mathbf{226} := 1+7+2\times 91+7+29 = ((92+7)\times((1^9)+2))-71$

$\mathbf{227} := 1+72-9+172-9 = (9\times 2)-((71-9)-271)$

$\mathbf{228} := 1\times 7\times 29+17\times 2-9 = 92+((((7-19)^2)-7)-1)$

$\mathbf{229} := (-1+7)\times(29+1+7)-2+9 = (9^2)+(71+((9+2)\times(7\times 1)))$

$\mathbf{230} := 1-7\times(2+9)+17\times 2\times 9 = (92-(7\times 19))+271$

$\mathbf{231} := 1\times 7\times(2\times 9+1+7-2+9) = 9+(((2^7)-(19\times(2-7)))-1)$

$\mathbf{232} := (1+7)\times(-2+9+1-7)\times 29 = (9\times 2)+(((7+1)\times 9)+(2\times 71))$

$\mathbf{233} := 17-2\times 9\times(17-29) = (9-27)-(1-(9\times(27+1)))$

$\mathbf{234} := (1-72+91-7)\times 2\times 9 = (((9\times 2)\times 7)-19)+((2^7)-1)$

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$\mathbf{235} := 1+72-9+(17+2)\times 9 = 92+(((7\times 19)+(2+7))+1)$

$\mathbf{236} := -1\times 7+(2\times 9+1\times 7+2)\times 9 = ((92+71)+((9^2)-7))-1$

$\mathbf{237} := 1+72+9\times 17+2+9 = (((9^2)+71)+92)-(7\times 1)$

$\mathbf{238} := 17\times(29-1-7+2-9) = (92-((71-92)\times 7))-1$

$\mathbf{239} := 1+7\times(29-1+7)+2-9 = (92-((71-92)\times 7))\times 1$

$\mathbf{240} := 1+7+29\times 1+7\times 29 = (92-((71-92)\times 7))+1$

$\mathbf{241} := 172+91+7-29 = (92+71)+(9-(2-71))$

$\mathbf{242} := (17+2+9+1-7)\times(2+9) = 9+(((27\times 1)\times 9)-((2+7)+1))$

$\mathbf{243} := 172-9-1+72+9 = (((9\times 27)+1)+9)-(2+(7+1))$

$\mathbf{244} := 1\times 72+91+72+9 = ((9\times((2+7)\times 1))+92)+71$

$\mathbf{245} := 17+291-72+9 = (9-(27-192))+71$

$\mathbf{246} := 172+(9-1)\times 7+2\times 9 = ((9\times 2)/(7-1))\times(9+(2+71))$

$\mathbf{247} := -1-7+291-7-29 = 92+(7+((19+(2^7))+1))$

$\mathbf{248} := -1+7\times 29+17+29 = ((9\times 2)-(7+19))+2^{7+1}$

$\mathbf{249} := 1-7+291-7-29 = (92-7)+(1+(92+71))$

$\mathbf{250} := 1+7\times 29+17+29 = (((9\times 27)\times 1)-9)+(2\times(7+1))$

$\mathbf{251} := 1\times 7\times 29-1-7\times(2-9) = 9+((27\times 19)-271)$

$\mathbf{252} := -17+291+7-29 = (9-2)\times((7+(1^9))+(27+1))$

$\mathbf{253} := (1+7)\times 29-1-7+29 = ((9+2)+(7+1))+(9\times(27-1))$

$\mathbf{254} := 1\times 72+9\times 17+29 = (9-(27-(1^9)))+271$

$\mathbf{255} := 1+72+9\times 17+29 = (92-7)\times(((1-9)/2)+(7\times 1))$

$\mathbf{256} := (1+7)\times 2\times(-9+17\times 2-9) = (((9\times 2)-7)+1)+((9\times 27)+1)$

$\mathbf{257} := 1\times 7+29\times(1+7)+2\times 9 = (((92-7)-(1-9))\times 2)+71$

$\mathbf{258} := (-1+7)\times(-2+9\times 1+7+29) = (9+271)-((9+(2\times 7))-1)$

$\mathbf{259} := 172+91+7-2-9 = (9+(271-92))+71$

$\mathbf{260} := 1+7+2\times(9\times(17-2)-9) = (((9\times 27)-1)-9)+(27\times 1)$

$\mathbf{261} := (17\times 2-9-1+7-2)\times 9 = (92+71)+(92+(7-1))$

$\mathbf{262} := (-1+7+29)\times(1+7)-2\times 9 = (((92+7)\times 1)+92)+71$

$\mathbf{263} := 172+91+7+2-9 = 9-(((27-1)-9)-271)$

$\mathbf{264} := -1+7\times 29-1+72-9 = (9+2^{7+1^{927}})-1$

$\mathbf{265} := 1\times 7\times 29-1+72-9 = (9+2)-(((7+1)+9)-271)$

$\mathbf{266} := (1\times 72-91)\times(-7+2-9) = (9-(2-7))-(19-271)$

$\mathbf{267} := 172+91-7+2+9 = (9+271)-(((9-2)+7)-1)$

$\mathbf{268} := 1+72-9+1+7\times 29 = ((9+2^{7+1})-9)+(2\times(7-1))$

$\mathbf{269} := (17+29)\times(-1+7)+2-9 = 92-((7-192)+(7+1))$

$\mathbf{270} := ((-1+7)\times 2-9)\times(1+7+2)\times 9 = 9+(271-((9^2)-71))$

$\mathbf{271} := 1+72-9\times 1\times(7-29) = ((9\times 27)+((1^9)+27))\times 1$

$\mathbf{272} := 17+291-7-29 = ((9\times 27)+((1^9)+27))+1$

$\mathbf{273} := (17-2+9\times(1-7))\times(2-9) = ((((9+2)+7)\times 1)/9)+271$

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$\mathbf{274} := 172+91-7+2\times 9 = ((9\times 2)-(7-1))-(9-271)$

$\mathbf{275} := 1\times 7+291-7\times 2-9 = ((9+(2\times 7))-19)+271$

$\mathbf{276} := 1\times 7+291+7-29 = 92\times(((7+1)\times 9)+(2-71))$

$\mathbf{277} := 1+7+291+7-29 = (9-2)+(7+(192+71))$

$\mathbf{278} := -17-2-9+17\times 2\times 9 = ((9\times 2)\times 7)+(19\times((2+7)-1))$

$\mathbf{279} := 17\times 2\times(-9+17)-2+9 = ((9+271)+(9-2))-(7+1)$

$\mathbf{280} := 17+2\times 91+(7+2)\times 9 = ((9+(2+7))\times 1)-(9-271)$

$\mathbf{281} := 172+91+7+2+9 = (9+(271-9))+((2+7)+1)$

$\mathbf{282} := 1-7+(-2+9+1)\times(7+29) = (9+(2\times(((7-19)^2)-7)))-1$

$\mathbf{283} := 17+291-7-2\times 9 = (927+1)-((92\times 7)+1)$

$\mathbf{284} := 172-91+7\times 29 = 92-(((7-192)-7)\times 1)$

$\mathbf{285} := -1+7+(29+1)\times(7+2)+9 = (92+7)+(192-(7-1))$

$\mathbf{286} := 17+291+7-29 = 9+(((2\times 7)+192)+71)$

$\mathbf{287} := -1-7-2-9+17\times 2\times 9 = (9\times(27+19))-((2^7)-1)$

$\mathbf{288} := (1+7+29\times 1)\times 7+29 = (9+27)\times(((1^{92})+7)\times 1)$

$\mathbf{289} := 1+72+9\times(17-2+9) = 9-((2-((7-1)\times(9-2)))\times(7\times 1))$

$\mathbf{290} := 172-9+1+7\times 2\times 9 = ((9+271)+(9\times 2))-(7+1)$

$\mathbf{291} := (-1+7\times 2)\times 9-(1-7)\times 29 = 9+((2\times((7-19)^2))-(7-1))$

$\mathbf{292} := 17\times 2\times 9\times 1-7+2-9 = ((9\times 2)-7)+((1+9)+271)$

$\mathbf{293} := 1\times 7+291-7\times 2+9 = (((9\times 27)-19)-2)+71$

$\mathbf{294} := 1+7+291-7\times 2+9 = (92-71)\times((9-2)+(7\times 1))$

$\mathbf{295} := (1\times 7+2+9)\times 17-2-9 = ((9+271)+(9-2))+(7+1)$

$\mathbf{296} := -17+291-7+29 = ((9+27)+(1^{92}))\times(7+1)$

$\mathbf{297} := 1\times 72+(-9+17\times 2)\times 9 = ((9^2)\times 7)+((1^9)-271)$

$\mathbf{298} := 172+9+(-1+7\times 2)\times 9 = ((9+27)\times 1)-(9-271)$

$\mathbf{299} := 172+91+7+29 = ((9+2)+7)+(1+(9+271))$

$\mathbf{300} := 1+7-2+91+7\times 29 = ((9\times 2)+(7+19))+2^{7+1}$

$\mathbf{301} := (1+7+29-1+7)\times(-2+9) = (92-71)+(9+271)$

$\mathbf{302} := -1\times 7+291+7+2+9 = (9+271)+((9+(2\times 7))-1)$

$\mathbf{303} := 17+291-7\times 2+9 = (9+(2\times((7-19)^2)))+(7-1)$

$\mathbf{304} := (1+7)\times((-2+9+1)\times 7-2\times 9) = (9-(2-7))+(19+271)$

$\mathbf{305} := 17-2\times(9-17)\times 2\times 9 = (9-271)+((9^2)\times(7\times 1))$

$\mathbf{306} := (1-72+91+7\times 2)\times 9 = ((9+271)+(9\times 2))+(7+1)$

$\mathbf{307} := 1-7+291-7+29 = (((92-71)\times 9)\times 2)-71$

$\mathbf{308} := 172+9+1+7\times 2\times 9 = (9-(2\times(7-192)))-71$

$\mathbf{309} := (-1+7)\times 2+9\times 17\times 2-9 = 927/(19-(2\times(7+1)))$

$\mathbf{310} := 17\times 2\times 9\times 1-7+2+9 = 92+((7\times(19+2))+71)$

$\mathbf{311} := 17\times 2\times 9+1-7+2+9 = ((9\times(2\times 7))+192)-(7\times 1)$

$\mathbf{312} := 17+291-7+2+9 = (92+7)+(((1^9)+2)\times 71)$

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$\mathbf{313} := 17+291+7\times 2-9 = (9+(2\times 7))+(19+271)$

$\mathbf{314} := (17+2)\times(9-1+7)+29 = ((9-2)\times((7\times 1)\times 9))-((2^7)-1)$

$\mathbf{315} := (17-2\times(9-17)+2)\times 9 = (9^2)+(71+(92+71))$

$\mathbf{316} := 17+2-9+17\times 2\times 9 = 9+(((27\times 1)+9)+271)$

$\mathbf{317} := 1\times(7+2+9)\times 17+2+9 = (9+271)+(9+(27+1))$

$\mathbf{318} := (-1+7)\times(-2+9+17+29) = ((9\times 2)+(7\times((1+9)/2)))\times(7-1)$

$\mathbf{319} := -17+291+(7-2)\times 9 = ((9+(27\times 1))\times 9)+((2-7)\times 1)$

$\mathbf{320} := -1\times 7+291+7+29 = (((9+27)-1)\times 9)-((2-7)\times 1)$

$\mathbf{321} := (1\times 72+91-7)\times 2+9 = 9+(2\times(71+(92-(7\times 1))))$

$\mathbf{322} := 1\times 7\times(2+9+17+2\times 9) = (9+271)+((9-2)\times(7-1))$

$\mathbf{323} := 17\times(-2+9-17+29) = (9\times 2)+(71+(9\times(27-1)))$

$\mathbf{324} := 1\times 7\times(29+(1+7)\times 2)+9 = 9\times((27-(1-(9^2)))-71)$

$\mathbf{325} := (1+7)\times 2\times 9+172+9 = (((9+27)\times 1)\times(9+2))-71$

$\mathbf{326} := 17+291+7+2+9 = ((9+27)+(19^2))-71$

$\mathbf{327} := (-1-7+29)\times(1+7)\times 2-9 = ((((9+27)+1)\times 9)+(2-7))-1$

$\mathbf{328} := 17\times 2\times 9\times 1-7+29 = ((9+2)-7)\times(1+(9\times((2+7)\times 1)))$

$\mathbf{329} := 1\times 7\times 2\times 9\times 1+7\times 29 = ((((9-2)\times 7)\times 1)+9)+271$

$\mathbf{330} := 17\times 29-172+9 = ((9\times 2)-7)\times((19\times 2)-(7+1))$

$\mathbf{331} := (1-7)\times(2-91)-7\times 29 = (((9\times 27)+19)-2)+71$

$\mathbf{332} := (-1+7+2-91)\times(7-2-9) = (9\times 2)+((7\times((19\times 2)+7))-1)$

$\mathbf{333} := (-1+72-(9+1+7)\times 2)\times 9 = (9\times 2)-(((7\times 1)\times 9)\times((2-7)\times 1))$

$\mathbf{334} := 17+2+9\times 17\times 2+9 = 92+((7+1)+(9\times(27-1)))$

$\mathbf{335} := 1+7+291+7+29 = ((((9+(2\times 7))\times 1)\times 9)+(2^7))\times 1$

$\mathbf{336} := (1+7)\times(-2+9-1+7+29) = (((9\times 2)+(7+19))-2)\times(7+1)$

$\mathbf{337} := (172+9-17)\times 2+9 = (92-(7+19))+271$

$\mathbf{338} := (17-2)\times 9+1\times 7\times 29 = ((9+(2+7))-(1-9))\times((2\times 7)-1)$

$\mathbf{339} := ((-1+7)\times 2+9)\times 17-2\times 9 = (9\times(27+1))+((9^2)+(7-1))$

$\mathbf{340} := -17-291+72\times 9 = 9+((271-(9+2))+71)$

$\mathbf{341} := 17+2\times 9+17\times 2\times 9 = (9^2)+((7\times(1+(9+27)))+1)$

$\mathbf{342} := 1\times 72\times 9-17\times 2\times 9 = 9\times((27+19)-((2+7)-1))$

$\mathbf{343} := 172+(91-72)\times 9 = (9\times(27-19))+271$

$\mathbf{344} := 172+91+72+9 = ((9\times 27)+1)+((92+7)+1)$

$\mathbf{345} := (-1-7+29)\times(1+7)\times 2+9 = (9^2)-((7\times(1^9))-271)$

$\mathbf{346} := 1+(-7+29)\times 17-29 = (92+(7\times 1))-(9-2^{7+1})$

$\mathbf{347} := -1\times 7+291+72-9 = (9^2)+(7\times((1+(9+27))+1))$

$\mathbf{348} := 1-7+291+72-9 = 92-((7-192)-71)$

$\mathbf{349} := 1\times 7+2\times(9\times 17+2\times 9) = ((9-27)+((19^2)+7))-1$

$\mathbf{350} := 1\times 7\times(29-1-7+29) = ((9-27)+((19^2)+7))\times 1$

$\mathbf{351} := 1\times(7-2)\times(9-1)\times(7+2)-9 = (9^2)+(7+(192+71))$

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$\mathbf{352} := (1+7)\times 2\times(9-1+7-2+9) = (9+((27\times(1+9))+2))+71$

$\mathbf{353} := 17+291+(7-2)\times 9 = (9+2^{7+1})+(((9^2)+7)\times 1)$

$\mathbf{354} := -(1-72+9)\times(-1+7)-2\times 9 = (92\times 7)-(19+271)$

$\mathbf{355} := 172+9+(-1+7)\times 29 = ((9^2)-(7-1))+(9+271)$

$\mathbf{356} := (1+72)\times(9+1-7+2)-9 = (9\times 2)+((7+19)\times((2\times 7)-1))$

$\mathbf{357} := (-1+7+2+9)\times(-1-7+29) = ((9\times 2)\times((7\times 1)+9))-(2-71)$

$\mathbf{358} := (1+7)\times 29+1\times 7\times 2\times 9 = ((9+271)+9)-(2-71)$

$\mathbf{359} := -1+72+(9-1)\times(7+29) = (927-1)-((9^2)\times(7\times 1))$

$\mathbf{360} := -1+7+291+72-9 = (9-27)\times((1-92)+71)$

$\mathbf{361} := 1\times 7+291+72-9 = ((9\times 2)\times 7)+(1+(9\times(27-1)))$

$\mathbf{362} := (1-7+29)\times 17-29 = (92+7)+(192+71)$

$\mathbf{363} := 17\times 2\times(9+1)+7\times 2+9 = ((((9\times 27)+1)-9)+(2^7))\times 1$

$\mathbf{364} := 1\times 7\times(-29\times 1+72+9) = ((9\times 27)+192)-71$

$\mathbf{365} := -1\times 7+291+72+9 = (9+271)+(92-(7\times 1))$

$\mathbf{366} := 1-7+291+72+9 = (9\times 27)-(19-(2\times 71))$

$\mathbf{367} := (1+7)\times 29+(17-2)\times 9 = 9+((271+(9^2))+(7-1))$

$\mathbf{368} := -1+72-9+17\times 2\times 9 = ((92+7)\times((1^9)+2))+71$

$\mathbf{369} := 1\times 72-9+17\times 2\times 9 = 9+((271+(9\times 2))+71)$

$\mathbf{370} := 1+72-9+17\times 2\times 9 = ((9-2)/7)+(((19^2)+7)+1)$

$\mathbf{371} := 17+291+72-9 = ((9\times(2+7))+(19^2))-71$

$\mathbf{372} := (-1+7)\times(2\times 9-1+(7-2)\times 9) = ((9\times 27)+((1^9)+(2^7)))\times 1$

$\mathbf{373} := -1+(7-2)\times 91-72-9 = ((9\times 27)+((1^9)+(2^7)))+1$

$\mathbf{374} := 17\times(2-9)+17\times 29 = (92\times 7)-(((1+9)\times 27)\times 1)$

$\mathbf{375} := 1+7\times 2+(9+1)\times(7+29) = (9-(2-(71\times 9)))-271$

$\mathbf{376} := -1\times 7+(29-1)\times 7\times 2-9 = 92+((71\times(9+(2-7)))\times 1)$

$\mathbf{377} := (1\times 7-2-9+17)\times 29 = (9\times(2+71))-(9+271)$

$\mathbf{378} := -1+7+291+72+9 = (9^2)+((7+19)+271)$

$\mathbf{379} := 1-7+2\times 91+7\times 29 = 9+((2+(71\times 9))-271)$

$\mathbf{380} := (-1+7-2+91)\times(-7+2+9) = (9\times((2+7)+19))+2^{7\times 1}$

$\mathbf{381} := -1+7\times 2\times(9+17)+2\times 9 = (9-271)+((92\times 7)-1)$

$\mathbf{382} := -1-7-2+(9-1)\times 7\times(-2+9) = (9-((2-7)-(19^2)))+(7\times 1)$

$\mathbf{383} := 172+9-1+7\times 29 = (92\times 7)+(1+(9-271))$

$\mathbf{384} := 1-72+91\times(7\times 2-9) = (9+(2^7))+(19\times((2\times 7)-1))$

$\mathbf{385} := 172+9+1+7\times 29 = ((9+2)\times((7\times(1^9))-2))\times(7\times 1)$

$\mathbf{386} := 1+7+(29-1-7)\times 2\times 9 = (9\times(27+19))-(27+1)$

$\mathbf{387} := 1\times 72+9+17\times 2\times 9 = (9\times(2-7))+((19^2)+71)$

$\mathbf{388} := 1\times 7\times(2+(9-1)\times 7)-2\times 9 = ((9+(27-1))\times 9)+(2+71)$

$\mathbf{389} := 17\times(2+9)-1+7\times 29 = (9+(2^7))-(19-271)$

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$\mathbf{390} := (1-72+9)\times(1-7)+2\times 9 = (9+(2\times 7))+((19^2)+(7-1))$

$\mathbf{391} := 17\times(29-17+2+9) = (9\times(2\times 7))+((19\times(2\times 7))-1)$

$\mathbf{392} := (-1-7+2\times(9-1))\times 7\times(-2+9) = (((9\times 2)-7)+(19\times 2))\times(7+1)$

$\mathbf{393} := 1+7+2\times 91+7\times 29 = (9+(((27\times 1)/9)\times(2^7)))\times 1$

$\mathbf{394} := -1\times 7+(29-1)\times 7\times 2+9 = (9+(((27\times 1)/9)\times(2^7)))+1$

$\mathbf{395} := 17\times(29-1)-72-9 = 927-(19\times(27+1))$

$\mathbf{396} := (-1+7+29+1)\times(-7+2\times 9) = (9\times 2)-(7\times(19-(2+71)))$

$\mathbf{397} := 1+(7+2\times 9)\times 17-29 = (((9-2)\times 71)-92)-(7+1)$

$\mathbf{398} := 17\times 2\times(9-1)+7\times 2\times 9 = ((9+(271-9))+(2^7))-1$

$\mathbf{399} := 1-7+(29+(1+7)\times 2)\times 9 = ((9+(271-9))+(2^7))\times 1$

$\mathbf{400} := -17+291+7\times 2\times 9 = ((9+(271-9))+(2^7))+1$

$\mathbf{401} := -17\times 2+(9-1+7)\times 29 = ((92\times 7)\times 1)-(9\times(27\times 1))$

$\mathbf{402} := (1-7+29)\times 17+2+9 = ((9^2)+(7\times(19+27)))-1$

$\mathbf{403} := -1\times(7-29)\times 17+29 = ((9^2)+(7\times(19+27)))\times 1$

$\mathbf{404} := (1+7+2+91)\times(-7+2+9) = ((9^2)+(7\times(19+27)))+1$

$\mathbf{405} := (17+(-2+9\times 1+7)\times 2)\times 9 = 9\times((((2^7)+1)-92)+(7+1))$

$\mathbf{406} := (-17+2\times 9+1)\times 7\times 29 = (9\times(27+19))-((2+7)-1)$

$\mathbf{407} := -(1+7)\times 29+(-1+72)\times 9 = ((9\times 2)\times 7)+((1+9)+271)$

$\mathbf{408} := 17\times 2\times(9-1-7+2+9) = (((9\times 2)+(7\times 1))+9)\times(2\times(7-1))$

$\mathbf{409} := 17-(2-9\times(1-7))\times(2-9) = ((9+(2\times 7))\times 19)-(27+1)$

$\mathbf{410} := -1\times 7+291+7\times 2\times 9 = (92+(71-9))+2^{7+1}$

$\mathbf{411} := 17\times 29-1-72-9 = 9-(2-((7\times 19)+271))$

$\mathbf{412} := (1\times 72-9\times 1)\times 7-29 = (9+(2^7))+(19+2^{7+1})$

$\mathbf{413} := 17\times 29+1-72-9 = (927-(19\times 27))-1$

$\mathbf{414} := (1\times 7-2\times(9-17))\times 2\times 9 = 927-((19\times 27)\times 1)$

$\mathbf{415} := (1+72+9+1)\times(7\times 2-9) = (927-(19\times 27))+1$

$\mathbf{416} := (1+7)\times(-2-9\times 1+72-9) = ((9+(2^7))-(1-9))+271$

$\mathbf{417} := -(1-7)\times 2+9\times 1\times(7-2)\times 9 = (92-((7-19)\times 27))+1$

$\mathbf{418} := -1-7+2\times(9+1+7\times 29) = (9+2)\times((7+((19\times 2)-7))\times 1)$

$\mathbf{419} := (17-2+9)\times 17+2+9 = ((9+2)\times(7+((19\times 2)-7)))+1$

$\mathbf{420} := (1-7+29)\times 17+29 = ((9-2)\times(7-19))\times(2-(7\times 1))$

$\mathbf{421} := 17\times 2\times(9+1)+(7+2)\times 9 = ((9-2)\times(((7\times 1)\times 9)-2))-(7-1)$

$\mathbf{422} := 1-7\times 2+(9-1+7)\times 29 = (9\times 2)+((7\times 19)+271)$

$\mathbf{423} := 1\times 729-17\times 2\times 9 = (9\times(27+19))+(2+(7\times 1))$

$\mathbf{424} := 1\times 7+291+7\times 2\times 9 = (((9^2)-7)-(19+2))\times(7+1)$

$\mathbf{425} := 1+7+291+7\times 2\times 9 = (92+(71-9))+271$

$\mathbf{426} := 1+7+(2\times 9+1)\times(-7+29) = 92+(((7\times 1)\times 9)+271)$

$\mathbf{427} := (-1+72-9)\times 1\times 7+2-9 = (9^2)-(((7-(19^2))+7)+1)$

$\mathbf{428} := -1+7\times(-2-9-1+72)+9 = ((9+(2\times 7))\times 19)-((2+7)\times 1)$

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$\mathbf{429} := -1-72+9+17\times 29 = (9^2)-(((7-(19^2))+7)-1)$

$\mathbf{430} := -1-7-291+729 = ((9-27)+(((1-9)^2)\times 7))\times 1$

$\mathbf{431} := -1\times 7-291+729 = (((9-2)+71)\times 9)-271$

$\mathbf{432} := 1-7-291+729 = (9\times 2)\times(((7-1)-9)+(27\times 1))$

$\mathbf{433} := -17+2\times 9\times((1+7)\times 2+9) = 927-(19\times(27-1))$

$\mathbf{434} := 17+291+7\times 2\times 9 = ((9-2)\times(((7\times 1)\times 9)-2))+(7\times 1)$

$\mathbf{435} := (1-7+29-1-7)\times 29 = (9+2)+((71-(9\times 2))\times(7+1))$

$\mathbf{436} := 1\times 7+(29+1)\times 7\times 2+9 = 9+(((2-7)+(19^2))+71)$

$\mathbf{437} := 1-7+2-9\times 1\times 7\times(2-9) = (9+(2-71))+((9-2)\times 71)$

$\mathbf{438} := (1+72)\times(-9+1+7-2+9) = (92-(7-((19^2)-7)))-1$

$\mathbf{439} := -1+7-2+(9-1+7)\times 29 = 92-((7-((19^2)-7))\times 1)$

$\mathbf{440} := (1+7+2)\times(9-1+7+29) = ((9\times(27+19))+27)-1$

$\mathbf{441} := (17+29+17)\times(-2+9) = (92-71)\times(92-71)$

$\mathbf{442} := 1-72\times(9-17+2)+9 = (9\times(27+19))+(27+1)$

$\mathbf{443} := (1-7-2)\times 9\times(1-7)+2+9 = (92+(71+9))+271$

$\mathbf{444} := -1-7+2+9\times(1-7\times(2-9)) = 9-((2-7)\times((1+92)-(7-1)))$

$\mathbf{445} := 1\times 7-291+729 = (92\times 7)-((192+7)\times 1)$

$\mathbf{446} := 1\times 72\times 9+1-7\times 29 = (9-2)+((7+(19^2))+71)$

$\mathbf{447} := -17+29\times 17-29 = 9-(2\times(((7-1)-9)\times(2+71)))$

$\mathbf{448} := 1\times(-72-9+17)\times(2-9) = ((9-2)+7)\times(((19\times 2)-7)+1)$

$\mathbf{449} := 1+(-72-9+17)\times(2-9) = 9+(((27\times 19)-2)-71)$

$\mathbf{450} := (1+7-29-1+72)\times 9 = (9-(2\times(7-192)))+71$

$\mathbf{451} := -1+(72-9-1)\times 7+2\times 9 = (9\times(27-(((1-9)\times 2)-7)))+1$

$\mathbf{452} := (1-7)\times 2+91\times(7-2)+9 = (92\times(7-1))-((92+7)+1)$

$\mathbf{453} := (-1+7)\times(-2+91)-72-9 = ((9+2)-(7+1))\times(9+(2\times 71))$

$\mathbf{454} := -1+(7-2)\times 91+7+2-9 = ((9+2)+((7-1)\times((9^2)-7)))-1$

$\mathbf{455} := 17-291+729 = 9-(2-(719-271))$

$\mathbf{456} := 1+7-2+9\times(1+7\times(-2+9)) = (92\times(7+1))-(9+271)$

$\mathbf{457} := 17\times 29\times 1-7-29 = ((9^2)+7)+(((19^2)+7)+1)$

$\mathbf{458} := (-1+72)\times 9-172-9 = (((9^2)\times 7)-(19\times 2))-71$

$\mathbf{459} := -1\times(7-2)+(9\times 1+7)\times 29 = 9+((2+719)-271)$

$\mathbf{460} := (1-72+91)\times(7\times 2+9) = (92+(71\times 9))-271$

$\mathbf{461} := 17\times(29+1)+7\times(2-9) = (9+2)+((7-1)\times(((9^2)-7)+1))$

$\mathbf{462} := -1-7+2+(9+17)\times 2\times 9 = (9\times(2\times(7+19)))+(2-(7+1))$

$\mathbf{463} := -1\times 7+2+(9+17)\times 2\times 9 = (((9^2)\times(7-1))-9)-((2\times 7)\times 1)$

$\mathbf{464} := (-1\times 7+29+1-7)\times 29 = ((92\times(7-1))-((9^2)+7))\times 1$

$\mathbf{465} := (17+2+9)\times 17-2-9 = (((927+19)/2)-7)-1$

$\mathbf{466} := -172-91+729 = (((927+19)/2)-7)\times 1$

$\mathbf{467} := -172-9\times 1+72\times 9 = (((927+19)/2)-7)+1$

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$\mathbf{468} := 17\times 29-17\times 2+9 = ((9-27)\times((1^9)-27))\times 1$

$\mathbf{469} := 17\times 2+(9-1+7)\times 29 = ((9-27)\times((1^9)-27))+1$

$\mathbf{470} := (1\times 72-9\times 1)\times 7+29 = (9+2)+((7+(1+9))\times(27\times 1))$

$\mathbf{471} := 17\times 29+1\times 7-29 = 9+((((2\times 7)+19)\times(2\times 7))\times 1)$

$\mathbf{472} := (1+7)\times(2+9-1-7\times(2-9)) = ((9^2)\times 7)+((19\times(2-7))\times 1)$

$\mathbf{473} := (1+7+29-1+7)\times(2+9) = (((9-2)\times 71)-(9\times 2))-(7-1)$

$\mathbf{474} := 17\times(29+1)-7-29 = (9-271)+(92\times(7+1))$

$\mathbf{475} := -17+2+(9+1)\times 7\times(-2+9) = (9-(2\times 7))\times(19\times(2-(7\times 1)))$

$\mathbf{476} := 17\times(2-9)\times 1\times(7-2-9) = ((9-(2-((7\times 1)\times 9)))-2)\times(7\times 1)$

$\mathbf{477} := (-1+7)\times(2+91)-72-9 = (9\times(27-1))+((9\times 27)\times 1)$

$\mathbf{478} := -17+(2+9\times 1)\times(7-2)\times 9 = ((((9\times 27)\times(1^9))\times 2)-7)-1$

$\mathbf{479} := -1\times 7+29\times 17+2-9 = (((927+19)/2)+7)-1$

$\mathbf{480} := 17\times 2\times 9-(1-7)\times 29 = (((927+19)/2)+7)\times 1$

$\mathbf{481} := (-1+7\times 2)\times(-9+17+29) = (((927+19)/2)+7)+1$

$\mathbf{482} := 1-7-2+(9+1)\times 7\times(-2+9) = (92\times 7)+(1-(92+71))$

$\mathbf{483} := -17-2+9+17\times 29 = (92\times 7)-(19+(2\times 71))$

$\mathbf{484} := -172+9-1+72\times 9 = (((9^2)\times 7)-(1+(9+2)))-71$

$\mathbf{485} := -1+(7+2)\times(-9\times 1+72-9) = (((9-2)\times 71)-(9\times 2))+(7-1)$

$\mathbf{486} := (17+2-9+17)\times 2\times 9 = ((9\times 27)\times 1)+(9\times(27\times 1))$

$\mathbf{487} := (17+2+9)\times 17+2+9 = (((92+7)\times(1+9))/2)-(7+1)$

$\mathbf{488} := (1+7)\times(2\times 9+17\times 2+9) = ((9-2)+((7-1)\times 9))\times(2+(7-1))$

$\mathbf{489} := (1-7)\times(2-91)-(7-2)\times 9 = (92+71)\times((9+(2-7))-1)$

$\mathbf{490} := (1\times 7-2+9)\times(-1+7+29) = ((9+2)-(7-1))\times(92+(7-1))$

$\mathbf{491} := 1\times 7\times(2+9)\times(-1+7)+29 = ((9+2)+((7-1)\times(9^2)))-(7-1)$

$\mathbf{492} := (1-7)\times 2+(9-1)\times(72-9) = ((9-27)+((1+9)^2))\times(7-1)$

$\mathbf{493} := 1\times 7+29\times 17+2-9 = (((9\times 27)\times(1^9))\times 2)+(7\times 1)$

$\mathbf{494} := 1-7+29\times 17-2+9 = 9+(((27\times 19)-27)-1)$

$\mathbf{495} := (-1+7)\times(-2+91-7+2)-9 = (9\times 27)-(19-271)$

$\mathbf{496} := 17\times(29+1)-7+2-9 = 92+((7\times 19)+271)$

$\mathbf{497} := 1\times 729-(1+7)\times 29 = (9/(2+7))-(1-((9-2)\times 71))$

$\mathbf{498} := (-1+7)\times((29+17)\times 2-9) = (9-2)-((7-1)-((9-2)\times 71))$

$\mathbf{499} := -1+7\times 2+9\times(1+7-2)\times 9 = (((9-2)\times 7)\times(1+9))+((2+7)\times 1)$

$\mathbf{500} := 1-7+2+(9-1)\times(72-9) = 9-(((2\times 7)\times((1-9)-27))-1)$

$\mathbf{501} := -17+(2+9\times(1+7))\times(-2+9) = (((9-2)+7)+1)+((9^2)\times(7-1))$

$\mathbf{502} := 1+7+291+7\times 29 = ((9+27)\times(1+9))+(2\times 71)$

$\mathbf{503} := -1-7+29\times 17+2\times 9 = (9\times(2+(71-9)))-(2+71)$

$\mathbf{504} := 1\times 7\times 2\times 9\times 1\times(-7+2+9) = (9\times(2\times 7))\times((1+(9+(2-7)))-1)$

$\mathbf{505} := -17+29\times 17+29 = (9\times(27-(1^9)))+271$

$\mathbf{506} := -1+7+29\times 17-2+9 = (9\times 27)+(192+71)$

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507 $:= (-(1+7)\times 2+91)\times 7-2\times 9 = ((9^2)\times(7-1))+(92-71)$

508 $:= (1+7\times 2\times 9)\times(-1+7\times 2-9) = (((9^2)\times 7)+(1+(9+2)))-71$

509 $:= 17\times 2\times 9+1\times 7\times 29 = (9-((2-7)\times((1+92)+7)))\times 1$

510 $:= 1+7\times 29+17\times 2\times 9 = (9-(2\times 71))+((92\times 7)-1)$

511 $:= (17+2-9\times(1-7))\times(-2+9) = (9-(2\times 71))+((92\times 7)\times 1)$

512 $:= (1+7)\times(29+17+2\times 9) = (((9\times 2)-(7+19))^2)\times(7+1)$

513 $:= (1-7)\times(2-91+7-2)+9 = ((((9-2)/7)\times 19)\times 27)\times 1$

514 $:= -1-7+29\times 17+29 = ((((9-2)/7)\times 19)\times 27)+1$

515 $:= -1\times 7+29\times 17+29 = (9+((2+7)\times 1))+((9-2)\times 71)$

516 $:= 1-7+29\times(1\times 7+2+9) = ((92\times 7)\times(1^9))-((2^7)\times 1)$

517 $:= -1+72+91\times(7-2)-9 = ((92-7)+(19^2))+71$

518 $:= 17\times 29+(17\times 2-9) = (9-(2-(71\times 9)))-((2^7)\times 1)$

519 $:= 17-2+9\times(1+7)\times(-2+9) = (((9\times 27)-19)\times 2)+71$

520 $:= 1-7\times(29+1)+729 = (9+((2+(7+19))\times 2))\times(7+1)$

521 $:= -1+(-7+29\times 1+7)\times 2\times 9 = (9+((2\times 7)+1))+((9-2)\times 71)$

522 $:= 1\times(-7+29\times 1+7)\times 2\times 9 = 9\times((2\times(7+19))-(2-(7+1)))$

523 $:= 1-72+9\times(-1+7)\times(2+9) = (9+271)+(9\times(27\times 1))$

524 $:= -1-7+(-2+9)\times(-1+7\times(2+9)) = (92\times 7)+((1-9)\times((2\times 7)+1))$

525 $:= 1\times 7\times(2+91)-7\times 2\times 9 = (9-2)\times(((71-9)+(2\times 7))-1)$

526 $:= 1+729-1-7\times 29 = (92\times 7)+(((1-(9\times 2))\times 7)+1)$

527 $:= -1\times 7\times 29+1+729 = (9+(271-9))+2^{7+1}$

528 $:= 1+729+1-7\times 29 = ((9\times 2)+(((7+1)\times 9)-2))\times(7-1)$

529 $:= (-1+7-2)\times 9+17\times 29 = (9^2)+(719-271)$

530 $:= -17-2\times 91+729 = (((9\times 2)+71)\times 9)-271$

531 $:= (-1+72)\times 9+(1-7)\times 2\times 9 = (92+7)+((19^2)+71)$

532 $:= (-1\times 7\times 2+91)\times 7+2-9 = ((9\times(27+1))+9)+271$

533 $:= 1+(-7\times 2+91)\times 7+2-9 = ((9-2)/7)+(19\times(27+1))$

534 $:= (1+7-2)\times(9-1+72+9) = (92\times(7-1))+(9-(27\times 1))$

535 $:= (1-7\times 2+91)\times 7-2-9 = (((92\times 7)+19)-(2^7))\times 1$

536 $:= 17\times 2+9+17\times 29 = 9+((2\times 7)+(19\times(27\times 1)))$

537 $:= 1+(7-2)\times 91+72+9 = (9+(2\times 7))+((19\times 27)+1)$

538 $:= -1+7+(2-9)\times(1-7\times(2+9)) = (((92\times(7-1))-9)+2)-(7\times 1)$

539 $:= 17+29\times 17+29 = ((((9-2)\times 7)\times 1)\times((9\times 2)-7))\times 1$

540 $:= (17-29\times 1+72)\times 9 = (92+719)-271$

541 $:= 1+72\times(9-1)-7-29 = (9\times(27+19))+((2^7)-1)$

542 $:= -1\times 7+(-2-9\times 1+72)\times 9 = (9+(271-9))+271$

543 $:= -17+29\times(17+2)+9 = ((9\times(27+19))+(2^7))+1$

544 $:= 17\times(29-1-7+2+9) = ((9^2)+719)-2^{7+1}$

545 $:= 1-72+(9-1)\times 7\times(2+9) = (((9-2)\times(7\times 1))\times(9+2))+(7-1)$

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$\mathbf{546} := 17 \times (29+1) + 7 + 29 = 9 + ((2 \times (7 \times 19)) + 271)$

$\mathbf{547} := 1 + 7 + (-2+9) \times 1 \times 7 \times (2+9) = (92 \times (7-1)) + (9 - (2 \times (7 \times 1)))$

$\mathbf{548} := 1 \times 729 - 172 - 9 = ((9^2) \times (7 \times 1)) + (9 - (27+1))$

$\mathbf{549} := 1 + 729 - 172 - 9 = 9 \times ((2 \times 7) + ((19+27)+1))$

$\mathbf{550} := (-1+7+2 \times 9+1) \times (-7+29) = (9+2) \times (71 - (92-71))$

$\mathbf{551} := (172 - 9 \times 17) \times 29 = (92 \times (7-1)) - (9/(2+(7 \times 1)))$

$\mathbf{552} := (-1+7) \times 2 \times (9+1+7+29) = (((9 \times 2) - 7) - 19) \times (2-71)$

$\mathbf{553} := -1 \times 7 \times (29 + (1-7) \times 2 \times 9) = ((9-2) \times 71) + ((9-2) \times (7+1))$

$\mathbf{554} := 1 - 7 + 2 - (9 + 1 - 72) \times 9 = (((92 \times 7) - 1) - (9 \times 2)) - 71$

$\mathbf{555} := 1 + 7 - 2 \times 91 + 729 = (9 + (2 \times 7)) + (19 \times (27+1))$

$\mathbf{556} := 17 \times 29 \times 1 + 72 - 9 = (9 \times (27+19)) + (2 \times 71)$

$\mathbf{557} := 17 \times (29-1) + 72 + 9 = ((9 + ((27-1) \times 9)) \times 2) + 71$

$\mathbf{558} := (17 + (-2 + 9 \times 1 + 7)) \times 2 \times 9 = ((9+2)+7) \times (((19 \times 2) - 7) \times 1)$

$\mathbf{559} := -(1+7) \times (2+9) - 1 + 72 \times 9 = (((9+2)+7) \times ((19 \times 2) - 7)) + 1$

$\mathbf{560} := ((1-7) \times 2 + 91) \times 7 - 2 + 9 = (9+271) + (9+271)$

$\mathbf{561} := (-1-7+2+9) \times 17 \times (2+9) = ((92 \times 7) - (1+9)) - (2+71)$

$\mathbf{562} := 1 \times 72 \times (9-1) - 7 + 2 - 9 = (((9^2) \times 7) - 1) - ((9 + (2-7)) \times 1)$

$\mathbf{563} := (1 + 72 + 9) \times 1 \times 7 - 2 - 9 = 9 + ((((271+9) \times 2) - 7) + 1)$

$\mathbf{564} := (1 - 7 \times 2 + 91) \times 7 + 2 \times 9 = (92 \times 7) - ((1+9) \times ((2+7) - 1))$

$\mathbf{565} := -1 - 72 - 91 + 729 = (((9^2) \times 7) - 1) + (9 - (2 + (7+1)))$

$\mathbf{566} := 1 \times 729 - 172 + 9 = ((92 \times 7) - 1) - ((9+2) \times (7 \times 1))$

$\mathbf{567} := 1 - 72 - 91 + 729 = (((9 - (27 \times 1)) + 9)^2) \times (7 \times 1)$

$\mathbf{568} := 1 - 72 + 9 \times 1 \times 72 - 9 = (((9-2) \times ((7 \times 1) \times 9)) + (2^7)) - 1$

$\mathbf{569} := 1 + 72 \times 9 + 1 - 72 - 9 = (92 \times 7) - ((1 + (9^2)) - (7 \times 1))$

$\mathbf{570} := 1 \times 7 \times (2+9+1) \times 7 - 2 \times 9 = (92 \times (7-1)) - (9 - (27 \times 1))$

$\mathbf{571} := -1 - 7 \times (2+9) + 1 + 72 \times 9 = ((9 + (2^{7-1} \times 9)) - (2 \times 7)) \times 1$

$\mathbf{572} := 17 - 2 - 91 + 72 \times 9 = (92 \times 7) - ((1^{92}) + 71)$

$\mathbf{573} := 17 \times 29 - 1 + 72 + 9 = ((9-2) + (71 \times 9)) - (2+71)$

$\mathbf{574} := 1 \times 72 + 9 + 17 \times 29 = ((92 \times 7) + (1^{92})) - 71$

$\mathbf{575} := 17 \times 29 + 1 + 72 + 9 = ((9 \times 2) - (7 \times 19)) \times (2 - (7 \times 1))$

$\mathbf{576} := (1 + 7 \times 2 + 9) \times (17 - 2 + 9) = (9 + ((2 \times 7) + 1)) \times (((9 \times 2) + 7) - 1)$

$\mathbf{577} := (-1 + 72) \times 9 + 1 - 72 + 9 = (9+2) + ((71 \times 9) - (2+71))$

$\mathbf{578} := 17 \times 2 \times (-9 + 1 + 7 + 2 \times 9) = ((9 \times 2) + ((7 \times 1) \times (9^2))) - (7 \times 1)$

$\mathbf{579} := (1-7) \times (2-91) + (7-2) \times 9 = 9 - (2 + (71 - ((92 \times 7) - 1)))$

$\mathbf{580} := -1 \times 7 + (291 + 7) \times 2 - 9 = (9-2) - (71 - ((92 \times 7) \times 1))$

$\mathbf{581} := (1 + 72 + 9 \times 1) \times 7 - 2 + 9 = ((9+2) + (71 \times 9)) + (2-71)$

$\mathbf{582} := (-1+7) \times (2 + 91 - 7 + 2 + 9) = (((9^2) + (7 - ((1+9)/2))) \times 7) + 1$

$\mathbf{583} := 1 \times 72 \times (-9 + 17) - 2 + 9 = (92 \times 7) - (1 - (9 + (2 - 71)))$

$\mathbf{584} := (1+72) \times (-9 - 1 + 7 + 2 + 9) = ((9-27) - (1-92)) \times (7+1)$

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585 := $(1-7-2)\times 9+(1+72)\times 9$ = $((92\times 7)+1)+(9+(2-71))$

586 := $1-72+9\times 1\times 72+9$ = $((9^2)\times(7\times 1))-(9-(27+1))$

587 := $1+72\times 9+1-72+9$ = $((92\times 7)-((1+(9-2))\times 7))-1$

588 := $1\times 7\times(-2+9-1)\times(7-2+9)$ = $((9+2)+719)-(2\times 71)$

589 := $-17-2+91\times 7-29$ = $((92\times 7)-((1+(9-2))\times 7))+1$

590 := $1\times 72\times(9-1)+7-2+9$ = $((9^2)\times(7\times 1))+(9+((2\times 7)\times 1))$

591 := $(1\times 7+291-7)\times 2+9$ = $9+(((27\times 19)-2)+71)$

592 := $(1+7)\times(2+9\times 1+72-9)$ = $(92\times 7)+((1+(9\times 2))-71)$

593 := $-1-72+91\times 7+29$ = $((9\times(2+71))+9)-(2+71)$

594 := $-1\times 72+91\times 7+29$ = $9\times(2+(((7\times 19)+2)-71))$

595 := $(1-7\times 2+91+7)\times(-2+9)$ = $(9-(2^7))\times(((1^{92})-7)+1)$

596 := $1-7+(2+91-7)\times(-2+9)$ = $(9+(2\times(((7-1)\times(9-2))\times 7)))-1$

597 := $(1-7)\times(-2+9)+(-1+72)\times 9$ = $(9+(2\times(((7-1)\times(9-2))\times 7)))\times 1$

598 := $-1+7-2+9\times(-1+7)\times(2+9)$ = $(92\times 7)-(19+(27\times 1))$

599 := $(1-7\times 2)\times(9+1)+729$ = $(9^2)+(7\times((1^9)+(2+71)))$

600 := $(17\times 2-9)\times(17-2+9)$ = $(((9^2)\times 7)-(19\times 2))+71$

601 := $-1-7+29\times(-1-7+29)$ = $(((92-7)\times 1)\times(9-2))+(7-1)$

602 := $1\times 72\times 9-17-29$ = $92+(((7-1)\times(92-7))\times 1)$

603 := $(172-91-7\times 2)\times 9$ = $(92+(71\times 9))-((2^7)\times 1)$

604 := $1+729\times 1-7\times 2\times 9$ = $(92+(71\times 9))-((2^7)-1)$

605 := $1-7\times 2\times 9+1+729$ = $(9+2)+(((7\times 1)+92)\times(7-1))$

606 := $1\times 7\times(2+9+1)\times 7+2\times 9$ = $((92\times 7)-1)-(9+(27+1))$

607 := $(17\times 2\times 9-1\times 7)\times 2+9$ = $((92\times 7)\times 1)-(9+(27+1))$

608 := $-1+(-7+2+9+17)\times 29$ = $((9+2)-7)\times(19\times(2+(7-1)))$

609 := $-1-7-2+91\times 7-2\times 9$ = $((92-7)\times(1+(9-2)))-71$

610 := $1-7+(29-1)\times(-7+29)$ = $(9\times 2)-(((7\times 1)-(9^2))\times(7+1))$

611 := $1\times 72\times 9-1-7-29$ = $(92+7)+((19\times 27)-1)$

612 := $17\times(2+9+17\times 2-9)$ = $(9-27)\times(1-(9+(27-1)))$

613 := $1+72\times(9-1)+7+29$ = $((92\times 7)-((19\times 2)-7))\times 1$

614 := $1-7-29+1+72\times 9$ = $((92\times 7)-((19\times 2)-7))+1$

615 := $(-1+7)\times(-2+91)+72+9$ = $((9-2)\times(7-(1-92)))-71$

616 := $(-1\times 7+29)\times(17+2+9)$ = $((((9^2)+(7-1))\times(9-2))+7)\times 1$

617 := $1+7-29\times(1+7-29)$ = $(((9^2)+(7-1))\times(9-2))+(7+1)$

618 := $1+7-29+(-1+72)\times 9$ = $(9-2)+(((71\times 9)-27)-1)$

619 := $(-1+7-2)\times 9\times 17-2+9$ = $(9-27)-(((1-92)\times 7)\times 1)$

620 := $(1\times 7-2)\times(9\times 17-29)$ = $(((92\times 7)-1)-9)-(2\times(7\times 1))$

621 := $1+(7-2)\times(9\times 17-29)$ = $(9+(2\times 7))\times(1+((9\times 2)+(7+1)))$

622 := $17+(291+7)\times 2+9$ = $(92\times 7)-(1+(92-71))$

623 := $1\times 7+(29-1)\times(-7+29)$ = $927-((19\times 2)\times(7+1))$

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$\mathbf{624} := -1\times 7\times 2-91+729 = (92\times 7)+(1-(92-71))$

$\mathbf{625} := (1\times 7+2\times 9)\times(17\times 2-9) = ((9\times 2)+7)^{1^{927}+1}$

$\mathbf{626} := 1+7-29-1+72\times 9 = ((92\times 7)+(1+(9-27)))-1$

$\mathbf{627} := 1\times 72\times 9+(1-7)\times 2-9 = ((92\times 7)+(1+(9-27)))\times 1$

$\mathbf{628} := 1+7-29+1+72\times 9 = ((92\times 7)+(1+(9-27)))+1$

$\mathbf{629} := 1\times 72-91+72\times 9 = (((92\times 7)-1)-9)+(2-(7\times 1))$

$\mathbf{630} := (17+2+9\times 1+7)\times 2\times 9 = ((9+27)-1)\times(9+(2+(7\times 1)))$

$\mathbf{631} := 1+72+(-9-1+72)\times 9 = ((9+27)\times(1+9))+271$

$\mathbf{632} := -1+72\times 9-1-7+2-9 = ((92\times 7)\times(1^9))-(2\times(7-1))$

$\mathbf{633} := -1-7-(2-91)\times 7+2\times 9 = (9\times(2+71))-((9\times 2)+(7-1))$

$\mathbf{634} := (1+72)\times 9-1+7-29 = ((9^2)+7)-((1-92)\times(7-1))$

$\mathbf{635} := 1-7+(-2+91)\times 7+2\times 9 = ((9\times(2\times 7))+1)\times(9+((2-7)+1))$

$\mathbf{636} := 1\times 72\times 9-1+7-2\times 9 = ((92\times 7)+19)-(27\times 1)$

$\mathbf{637} := 17-29+1+72\times 9 = (927-19)-271$

$\mathbf{638} := 17\times(29-1+7+2)+9 = (9-(27+1))+(9\times(2+71))$

$\mathbf{639} := -1\times 7-2-9+(1+72)\times 9 = (((92\times 7)-1)-9)-(2-(7\times 1))$

$\mathbf{640} := 1+72\times(9+1)-72-9 = 9-((27-1)-(9\times(2+71)))$

$\mathbf{641} := 1+7\times(2+91)+7-2\times 9 = ((9+2)+((71\times 9)-2))-(7\times 1)$

$\mathbf{642} := -1+7-2-91+729 = (92-71)-(9\times(2-71))$

$\mathbf{643} := 1\times 7-2-91+729 = ((92\times 7)-1)+((9-(2+7))\times 1)$

$\mathbf{644} := 1+72\times 9-1+7-2-9 = (((92\times 7)+(1+9))-(2+7))-1$

$\mathbf{645} := 1\times 72\times 9+(1-7)\times 2+9 = (((92\times 7)+(1+9))-(2+7))\times 1$

$\mathbf{646} := 17\times(2\times(9+1)+7+2+9) = (((92\times 7)+(1+9))-(2+7))+1$

$\mathbf{647} := -17-2+91\times 7+29 = (9\times(27+((19\times 2)+7)))-1$

$\mathbf{648} := 1+729-1-72-9 = (9\times(27+((19\times 2)+7)))\times 1$

$\mathbf{649} := 1+729\times 1-72-9 = (9\times(2+(71-9)))+(2+71)$

$\mathbf{650} := 1-72-9+1+729 = ((9\times 2)+(7\times(1^9)))\times(27-1)$

$\mathbf{651} := -1-7+2+9\times 1+72\times 9 = (((92\times 7)-19)+27)-1$

$\mathbf{652} := (1+72)\times 9-1+7-2-9 = (((92\times 7)-19)+27)\times 1$

$\mathbf{653} := 17-2-91+729 = (9-(2-(719-2)))-71$

$\mathbf{654} := 17-2-9+1\times 72\times 9 = ((92\times 7)+(19-(2+7)))\times 1$

$\mathbf{655} := 17\times 2\times(91-72)+9 = (927-(1^9))-271$

$\mathbf{656} := 17\times 29+172-9 = ((9+2)-7)\times(1+(92+71))$

$\mathbf{657} := 17+2-91+729 = 9\times(27+(19+(27\times 1)))$

$\mathbf{658} := 1+72\times(9+1)-72+9 = (9\times(2\times 7))+(19\times(27+1))$

$\mathbf{659} := -17+29-1+72\times 9 = (9+2)+((71\times 9)+(2+(7\times 1)))$

$\mathbf{660} := 1\times 72\times 9-17+29 = ((9-2)\times(7\times 19))-271$

$\mathbf{661} := 1+72\times 9-17+29 = ((92\times 7)\times 1)+((9+(2+7))-1)$

$\mathbf{662} := 1\times 7\times(2+91)-7+2\times 9 = (9-2)+(719-2^{7-1})$

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663 $:= 1+7\times(2+91)-7+2\times 9 = (((9+2)+7)+1)+((92\times 7)\times 1)$

664 $:= 1+7-2+9+1+72\times 9 = 927-(192+71)$

665 $:= -1-72+9\times 1+729 = (9-271)+(927\times 1)$

666 $:= 1+729-1-72+9 = 9-((271-927)-1)$

667 $:= -17+(2\times 9+1)\times(7+29) = (9+(2\times 7))-((1-(92\times 7))-1)$

668 $:= -1+72\times 9-1-7+29 = (92\times 7)+(192/(7+1))$

669 $:= 1\times 72\times 9+(-1+7)\times 2+9 = ((9\times 2)+((7\times 1)+(92\times 7)))\times 1$

670 $:= 1\times(7-2)\times(9-1+7\times 2\times 9) = ((92\times(7\times(1^9)))+27)-1$

671 $:= 1-7+29+1\times 72\times 9 = ((92\times(7\times(1^9)))+27)\times 1$

672 $:= 1\times 72\times 9-1+7+2\times 9 = ((92\times(7\times(1^9)))+27)+1$

673 $:= -1+72\times 9+1-7-2\times 9 = ((9+27)-((1-92)\times 7))\times 1$

674 $:= 172+9+17\times 29 = ((9+27)-((1-92)\times 7))+1$

675 $:= 1+72\times 9+1+7+2\times 9 = (927+19)-271$

676 $:= (-1+7-2+91)\times 7+2+9 = (((9^2)\times 7)+(19\times 2))+71$

677 $:= 1+7\times(2+91)+7+2\times 9 = ((9+2)+(71\times 9))+(27\times 1)$

678 $:= 1-7+(2\times 9+1)\times(7+29) = ((9\times(2+71))+92)-71$

679 $:= (1\times 7-2+91)\times 7-2+9 = (927-(1-9))-2^{7+1}$

680 $:= 1\times 7\times 2+9+(1+72)\times 9 = ((92\times 7)-1)+(9+(27+1))$

681 $:= 1+7\times 2+9+(1+72)\times 9 = ((92\times 7)\times 1)+(9+(27+1))$

682 $:= 17+2\times 9-1+72\times 9 = (((9-(27-1))-9)^2)+(7-1)$

683 $:= 1\times 7+29-1+72\times 9 = 92+((719-(2^7))\times 1)$

684 $:= 1+729-17-29 = (9+(2-7))\times((19\times(2+7))\times 1)$

685 $:= 1\times 72\times 9+1+7+29 = (927\times 1)-((9\times 27)-1)$

686 $:= 1+72\times 9+1+7+29 = 927+(1-((9\times 27)-1))$

687 $:= -17\times 2-9+1+729 = ((92-7)\times(1+(9-2)))+(7\times 1)$

688 $:= (-1+7-2)\times(9+172-9) = 9+(27+(((1+92)\times 7)+1))$

689 $:= -1+7\times(-2+91+7)+2\times 9 = (9^2)-((7\times((1-(9^2))-7))+1)$

690 $:= (1+7+2)\times(91+7-29) = (92\times 7)+(19+(27\times 1))$

691 $:= -1+729-1-7-29 = ((9\times 2)\times 7)-(1-(((9^2)\times 7)-1))$

692 $:= 1\times 729-1-7-29 = (9+(27-1))+(9\times(2+71))$

693 $:= 1-7-29-1+729 = (9\times(2-((7-(1-9))\times(2-7))))\times 1$

694 $:= -17+(-2+9\times 1+72)\times 9 = (92\times 7)-((19+2)-71)$

695 $:= 1+729+1-7-29 = 9+((2\times((7\times(1^9))^2))\times(7\times 1))$

696 $:= (-1+7)\times 2\times(9\times 1-7)\times 29 = (((92\times 7)-1)-(9\times 2))+71$

697 $:= 17\times(29-17+29) = (9+2)+((7\times 1)\times(92+(7-1)))$

698 $:= 1-7+(2+9)\times(1+72-9) = (9\times 2)+(((7+1)\times(92-7))\times 1)$

699 $:= 1+(-7+2)\times(-9-1)+72\times 9 = (9-2)+(719-(27\times 1))$

700 $:= -17-2-9-1+729 = 9-(2-((719-27)+1))$

701 $:= (-1+72)\times 9-1+72-9 = ((9^2)\times 7)+(1-(9-(2\times 71)))$

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702 $:= -17-2-9+1+729 = (9+2)+((719-27)-1)$
703 $:= -17\times 2+9-1+729 = ((9+2)\times 71)-(9-(2-71))$
704 $:= 1+7+29\times(1+7\times 2+9) = ((92\times 7)\times 1)-(9+(2-71))$
705 $:= -17\times 2+9+1+729 = ((92\times 7)+1)-(9+(2-71))$
706 $:= 1\times 7-29-1+729 = (9\times 2)+((7+1)\times(92-(7-1)))$
707 $:= 1+7-29-1+729 = (9+2)+(((7-1)+(9^2))\times(7+1))$
708 $:= -17+29\times(17\times 2-9) = ((9+2)\times(71-9))+(27-1)$
709 $:= 1+7-29+1+729 = (9\times 2)+((719-27)-1)$
710 $:= (-1+72)\times(91-72-9) = (9-27)-((1-92)\times(7+1))$
711 $:= 1\times 729\times 1-7-2-9 = (9\times 2)+((719-27)+1)$
712 $:= 17+2+9\times 1\times 7\times(2+9) = ((((9^2)\times(7+1))-9)+2)+71$
713 $:= 1+72\times 9+1+72-9 = (9^{27\times 1/9})-(2\times(7+1))$
714 $:= 1\times 729-1-7+2-9 = (((9^2)-71)+92)\times(7\times 1)$
715 $:= (-17-2+91-7)\times(2+9) = 9+((2+719)-((2\times 7)+1))$
716 $:= -172+917-29 = ((92\times 7)+(1^{92}))+71$
717 $:= 1\times 729+17-29 = (9-2)+((71\times(9+2))-71)$
718 $:= 17-29+1+729 = (9-2)+((719-(2+7))+1)$
719 $:= -1+72+9\times(1+72)-9 = 9+(((27-19)+2)\times 71)$
720 $:= 1\times 72+9\times(-1+72)+9 = ((92\times 7)-1)+((9+2)\times(7\times 1))$
721 $:= -1-7+(2+9-1)\times 72+9 = (9+2)-(71-((9+2)\times 71))$
722 $:= -1+729-17+2+9 = (9\times 2)+((719-(2\times 7))-1)$
723 $:= -1+729-1+7-2-9 = ((92+(71\times 9))-2)-(7-1)$
724 $:= 1\times 729-1+7-2-9 = (9\times 2)+((719-(2\times 7))+1)$
725 $:= 1-7\times 2+9+1\times 729 = ((9+((2+719)+2))-7)\times 1$
726 $:= 1-7\times 2+9+1+729 = 9+(2+(71+((92\times 7)\times 1)))$
727 $:= -1+729-1+7+2-9 = 927-((192+7)+1)$
728 $:= -1+7+2+(9-1+72)\times 9 = (927-192)-(7\times 1)$
729 $:= 1\times 729\times 1+7+2-9 = 9\times(((27-19)+2)+71)$
730 $:= 1+729\times(1-7-2+9) = 92-((7-1)-(92\times(7\times 1)))$
731 $:= 17\times(2\times 9+(1+7)\times 2+9) = (9\times 2)+(719+((2-7)-1))$
732 $:= -(1-7)\times 2+(9-1+72)\times 9 = ((92\times 7)-1)+((9\times 2)+71)$
733 $:= -1\times 7+2+9\times 1+729 = (9\times 2)+(71+((92\times 7)\times 1))$
734 $:= -1+7\times 2-9+1+729 = (9-2)+((719+(2+7))-1)$
735 $:= 1\times 729+17-2-9 = (9-2)\times(((7\times 19)-27)-1)$
736 $:= 17-2-9+1+729 = (9-2)+((719+(2+7))+1)$
737 $:= 1+729+(1+7)\times 2-9 = (9+2)\times(((7+1)\times 9)+((2-7)\times 1))$
738 $:= (1+7+2)\times 9\times 1+72\times 9 = (92+719)-(2+71)$
739 $:= 1+(7+2)\times 91-(7+2)\times 9 = (92+(71\times 9))+(2+(7-1))$
740 $:= -1+729-17+29 = 9+(((2+719)+2)+(7+1))$

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$\mathbf{741} := 1 \times 729 - 17 + 29 = (((92 + (71 \times 9)) + 2) + 7) + 1$

$\mathbf{742} := 17 + 29 \times (17 \times 2 - 9) = 92 + (719 + (2 - 71))$

$\mathbf{743} := 1 + 7 - 2 + 9 - 1 + 729 = 927 - (192 - (7 + 1))$

$\mathbf{744} := 1 \times 729 + 1 + 7 - 2 + 9 = (92 \times (7 + (1^{92}))) + (7 + 1)$

$\mathbf{745} := 1 + 729 + 1 + 7 - 2 + 9 = (((9^2) + 7) \times 1) + (9 \times (2 + 71))$

$\mathbf{746} := (1 \times 7 \times 2 + 91) \times 7 + 2 + 9 = (9^2) + (((7 + 1) \times 92) - 71)$

$\mathbf{747} := -1 - 72 + 91 + 729 = (((9 - (27 - 1)) - 9)^2) + 71$

$\mathbf{748} := -1 \times 72 + 91 + 729 = (((9 \times 2) \times ((7 - 1) \times (9 - 2))) - 7) - 1$

$\mathbf{749} := -1 + 729 - 1 - 7 + 29 = 92 + ((7 \times (1 + 92)) + (7 - 1))$

$\mathbf{750} := 1 \times 729 - 1 - 7 + 29 = (((9 \times 2) \times ((7 - 1) \times (9 - 2))) - 7) + 1$

$\mathbf{751} := (-1 + 7) \times 2 + 91 + 72 \times 9 = ((92 - 7) \times (1 + (9 - 2))) + 71$

$\mathbf{752} := 1 + 729 - 1 + 7 \times 2 + 9 = (((9^2) - 7) \times (1 + 9)) + (2 \times (7 - 1))$

$\mathbf{753} := 17 \times (29 + 17) - 29 = (9 + (2 \times 7)) + ((1 + 9) \times (2 + 71))$

$\mathbf{754} := 1 \times 7 + 2 \times 9 \times 1 + 729 = (92 \times (7 + 1)) - ((9 - 27) \times 1)$

$\mathbf{755} := 1 + 7 + 2 \times 9 \times 1 + 729 = (92 \times 7) - (((1 - 9) \times (2 \times 7)) + 1)$

$\mathbf{756} := ((1 - 7) \times 2 - 9 \times (1 - 7)) \times 2 \times 9 = ((9 + 27) \times 1) \times (92 - 71)$

$\mathbf{757} := 17 + 2 + 9 \times 1 + 729 = ((92 \times (7 + 1)) + 92) - 71$

$\mathbf{758} := 1 \times (7 - 2) \times 9 \times 17 + 2 - 9 = (9 + 2) + (719 + (27 + 1))$

$\mathbf{759} := 1 \times 7 - 2 + (9 + 17) \times 29 = (((9 - 2) \times 71) - 9) + 271$

$\mathbf{760} := 1 + 7 - 2 + (9 + 17) \times 29 = (9 \times 2) + (((7 + 1) \times 92) + (7 - 1))$

$\mathbf{761} := 1 \times 7 \times (2 \times 91 - 72) - 9 = (9^2) + ((7 + 1) \times ((92 - 7) \times 1))$

$\mathbf{762} := 1 + 7 \times (2 \times 91 - 72) - 9 = ((9 \times 2) + (7 + 1)) + (92 \times (7 + 1))$

$\mathbf{763} := 17 + 2 \times 9 - 1 + 729 = (927 - (1 + 92)) - 71$

$\mathbf{764} := 17 + 2 \times 9 \times 1 + 729 = (92 \times 7) - ((1 - 9) \times ((2 \times 7) + 1))$

$\mathbf{765} := 1 + 729 - 1 + 7 + 29 = 927 + ((1 - 92) - 71)$

$\mathbf{766} := 17 \times (-2 + 9) - 1 + 72 \times 9 = (927 - 19) - (2 \times 71)$

$\mathbf{767} := 1 + 7 + 29 + 1 + 729 = ((((9 + 2) \times 71) - (9 - 2)) - 7) \times 1$

$\mathbf{768} := 1 - 7 + 2 \times 9 \times (17 \times 2 + 9) = (((9 + 2) \times 71) - (9 - 2)) - (7 - 1)$

$\mathbf{769} := -1 - (7 - 29) \times (-1 + 7 + 29) = (9 \times (2 \times (7 \times 1))) + ((92 \times 7) - 1)$

$\mathbf{770} := (-1 + 7 \times 2 + 9) \times (17 + 2 \times 9) = ((9^2) - (7 + 19)) \times (2 \times (7 \times 1))$

$\mathbf{771} := -1 + 7 + (2 \times 9 - 1) \times (7 - 2) \times 9 = ((9 \times (2 \times 7)) + (1 + (92 \times 7))) \times 1$

$\mathbf{772} := 1 \times 729 + 17 \times 2 + 9 = (9 \times (2 \times 7)) + (1 + ((92 \times 7) + 1))$

$\mathbf{773} := 1 + 729 + 17 \times 2 + 9 = (9 + (27 + 1)) + (92 \times (7 + 1))$

$\mathbf{774} := 17 + 29 - 1 + 729 = 9 - ((2 - (71 \times 9)) - ((2^7) \times 1))$

$\mathbf{775} := 1 + 7 \times 2 \times 9 \times 1 + 72 \times 9 = (9^2) + ((((7 \times 1) + 92) \times 7) + 1)$

$\mathbf{776} := 1 + 729 + 17 + 29 = ((9 + 2) \times (7 \times (1 + 9))) - ((2 - 7) - 1)$

$\mathbf{777} := 1 \times 7 \times (2 + 91) + 7 \times 2 \times 9 = (((92 \times 7) \times 1) - 9) + (2 \times 71)$

$\mathbf{778} := 1 + 7 \times (2 + 91) + 7 \times 2 \times 9 = 9 - ((2 \times (7 - 1)) - ((9 + 2) \times 71))$

$\mathbf{779} := 1 + 729 - 1 \times 7 \times (2 - 9) = (927 - ((19 + 2) \times 7)) - 1$

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$\mathbf{780} := 1+7\times(2\times 91-72)+9 = (92-(71-9))\times(27-1)$

$\mathbf{781} := (17+2+91)\times 7+2+9 = (927-((19+2)\times 7))+1$

$\mathbf{782} := (17+29)\times(-1+7+2+9) = (((9+2)\times 71)-(9-2))+(7+1)$

$\mathbf{783} := 1\times 72+(9+1)\times 72-9 = ((9^2)\times 7)-((1-9)\times(27\times 1))$

$\mathbf{784} := 1+7\times 2\times 9+(1+72)\times 9 = (92+719)-(27\times 1)$

$\mathbf{785} := 1+7\times 2\times(9-17)\times(2-9) = 92+(719-(27-1))$

$\mathbf{786} := (1+7)\times(-2+91+7)+2\times 9 = 92+(((7\times 1)\times(92+7))+1)$

$\mathbf{787} := -(1+7\times(2-9))\times 17-29 = ((9+2)\times((7+1)\times 9))+((2-7)\times 1)$

$\mathbf{788} := (17+2+91)\times 7+2\times 9 = (9-2)+(71\times(((9\times 2)-7)\times 1))$

$\mathbf{789} := 17+2+(9+1)\times 7\times(2+9) = (9\times 27)-((1-92)\times(7-1))$

$\mathbf{790} := -1+72-9-1+729 = ((92\times 7)+(19+(2^7)))-1$

$\mathbf{791} := 1\times 72-9-1+729 = ((92\times 7)+(19+(2^7)))\times 1$

$\mathbf{792} := (1\times 7+29\times 1)\times(-7+29) = (9\times 2)\times((7+(1+(9+27)))\times 1)$

$\mathbf{793} := 1\times 729+1+72-9 = (9+(27\times 19))+271$

$\mathbf{794} := 1+72-9+1+729 = 92+(((7+19)\times 27)\times 1)$

$\mathbf{795} := (1+7\times 2)\times(-9-1+72-9) = (9-(2-(719-2)))+71$

$\mathbf{796} := 1+729+(-1+7)\times(2+9) = (92\times(7-1))+((9\times 27)+1)$

$\mathbf{797} := -17+(2+9\times(1+7))\times(2+9) = ((9+2)\times((7+1)\times 9))-((2-7)\times 1)$

$\mathbf{798} := 1+7+(2+9)\times(-1+72)+9 = (9+((2+(71\times(9+2)))+7))-1$

$\mathbf{799} := 17\times(29\times 1+7+2+9) = 9-((2-719)-(2+71))$

$\mathbf{800} := -1+72\times(9+1)+72+9 = (92+(71\times 9))-(2-71)$

$\mathbf{801} := -17-2+91+729 = (9\times(2+71))+((9\times 2)\times(7+1))$

$\mathbf{802} := 172+91\times 7+2-9 = (92+719)-(2+(7\times 1))$

$\mathbf{803} := -1\times 7+(2+9-1)\times(72+9) = (9+2)+((719+2)+71)$

$\mathbf{804} := -1-7+2+(9+1)\times(7+2)\times 9 = (927+19)-(2\times 71)$

$\mathbf{805} := -1\times 7+2+9\times(1+7+2)\times 9 = (92\times 7)+(19+(2\times 71))$

$\mathbf{806} := 1+(7+2)\times 91-7+2-9 = 927-(192-71)$

$\mathbf{807} := 17-(2+9)\times(1-72)+9 = (9-(2^7))-(1-(927\times 1))$

$\mathbf{808} := -1+(7+2)\times 9-1+729 = 9-(((2^7)+1)-(927+1))$

$\mathbf{809} := 1\times 72+9-1+729 = (927+(1+9))-2^{7\times 1}$

$\mathbf{810} := 172-91+729 = 9\times(((27-1)-(9-2))+71)$

$\mathbf{811} := 1+729\times 1+72+9 = ((9^2)-(7-1))+(92\times(7+1))$

$\mathbf{812} := 1-7-2+91+729 = (9^2)+(719+(2\times(7-1)))$

$\mathbf{813} := 1+(7\times 2-9-1)\times 7\times 29 = (((9\times 2)-(7-1))-9)\times 271$

$\mathbf{814} := (-1-7-2+91-7)\times(2+9) = ((92\times(7+1))+9)-(2-71)$

$\mathbf{815} := 1\times 7\times(-2+9)\times 17-2\times 9 = (92+71)\times(9+((2-7)+1))$

$\mathbf{816} := 1+7\times(-2+9)\times 17-2\times 9 = (9\times 2)-((7\times 19)\times((2-7)-1))$

$\mathbf{817} := 1\times 729+(1+7)\times(2+9) = 92+(((719-2)+7)+1)$

$\mathbf{818} := -1+7+2+91\times(7+2)-9 = (927-(19\times 2))-71$

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819 $:= (1\times 72+91-72)\times 9 = (92+((719+2)+7))-1$

820 $:= 172+91\times 7+2+9 = (92+719)+(2+(7\times 1))$

821 $:= -1+72\times 9-(1-7)\times 29 = 9-((((2+7)\times(1-92))+7)\times 1)$

822 $:= 1\times 7\times(-2+9)\times 17-2-9 = 92+((((7+1)\times 92)-7)+1)$

823 $:= (1+72-9)\times(-1+7\times 2)-9 = (9^2)+((((7+1)\times 92)+7)-1)$

824 $:= 1\times 7\times 2+9\times(1+7+2)\times 9 = 92+((719+(2\times 7))-1)$

825 $:= -1+72+(9+17)\times 29 = (92+(719+(2\times 7)))\times 1$

826 $:= 1+7-2+91+729 = (92+(719+(2\times 7)))+1$

827 $:= (-1+7)\times(2\times 9+1)\times 7+29 = (9^2)+((719+27)\times 1)$

828 $:= 1-72+917-2\times 9 = ((927\times 1)-92)-(7\times 1)$

829 $:= 1\times 7+2+91+729 = (927\times 1)-(92+(7-1))$

830 $:= 1+72\times 9+172+9 = (((9^2)\times 7)+192)+71$

831 $:= 17+(2+9\times(1+7))\times(2+9) = 927+(((1-9)\times 2)\times(7-1))$

832 $:= -1+7\times(-2+9)\times(-1+7+2+9) = ((92-7)+19)\times(2+(7-1))$

833 $:= -1-72+917-2-9 = (9-2)\times((7\times 19)-(2\times(7\times 1)))$

834 $:= 1\times 7\times 2+91+729 = 927-(((1+9)^2)-(7\times 1))$

835 $:= 17-2+91+729 = (927-(19+2))-71$

836 $:= (1+7+29+1)\times(-7+29) = (9\times(2-((7+(1-92))-7)))-1$

837 $:= -1-72+917+2-9 = 92+((719+27)-1)$

838 $:= 172+9+(1+72)\times 9 = (92+719)+(27\times 1)$

839 $:= 17+2+91+729 = 927-((19-2)+71)$

840 $:= (17-2+9)\times(-1+7+29) = 927+(((1-9)\times 2)-71)$

841 $:= (1+72-9)\times(-1+7\times 2)+9 = ((9+((2^7)-(19-2)))\times 7)+1$

842 $:= 1+7\times 2\times(9-1)+729 = (927+1)-(92-(7-1))$

843 $:= 17-2+91\times(7+2)+9 = ((927\times 1)-92)+(7+1)$

844 $:= 1\times 7\times(-2+9)\times 17+2+9 = 9+((2+(7\times((19-2)\times 7)))\times 1)$

845 $:= (-1+7\times 2)\times 9-1+729 = (9\times(2\times((7-1)\times 9)))-((2^7)-1)$

846 $:= (17\times 2+91)\times 7-29 = 927+((1-9)-(2+71))$

847 $:= 17\times(-2+9)-1+729 = (9+271)+((9^2)\times(7\times 1))$

848 $:= (1+7)\times(-2+9\times(-17+29)) = ((927-1)-((9+2)\times 7))-1$

849 $:= -1+7\times 29-1+72\times 9 = 9-((((2-71)+9)\times 2)\times(7\times 1))$

850 $:= 1\times 72\times 9-1+7\times 29 = (927+(1-(9-2)))-71$

851 $:= -1-72+917-2+9 = ((927-1)-(9^2))+(7-1)$

852 $:= 1+(7\times 2-9)\times 172-9 = 927-(1+(((9^2)-7)\times 1))$

853 $:= 1-72+917-2+9 = (9-2)+((719+(2^7))-1)$

854 $:= 1+7+(-2+91+7-2)\times 9 = ((9-2)+(719+(2^7)))\times 1$

855 $:= -1-72+917+2+9 = ((9-2)+(719+(2^7)))+1$

856 $:= 1+729\times 1+7\times 2\times 9 = 9+(271+(9\times 2^{7-1}))$

857 $:= 1-72+917+2+9 = (927+(1^{92}))-71$

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858 $:= (-1+7)\times(2+9)\times(-1+7-2+9) = (9+2)+(7\times(192-71))$

859 $:= -1+(7-2)\times(91+72+9) = ((9+2)\times 71)+(9-(2-71))$

860 $:= 1-7\times 2\times(9+1-72)-9 = (92\times 7)-((1-9)\times(27\times 1))$

861 $:= (-17+2\times(9+1)\times 7)\times(-2+9) = ((9\times(2+7))-1)+((9+2)\times 71)$

862 $:= 1\times 7\times(2\times 9+1)+729 = 9-(2+((71-927)+1))$

863 $:= 1+7\times(2\times 9+1)+729 = ((9+2)+71)+((9+2)\times 71)$

864 $:= (1\times 7+2)\times(91+7)-2\times 9 = (927+(1+9))-(2+71)$

865 $:= (1+7+2)\times 91+(-7+2)\times 9 = (9\times 27)+(1-(9\times(2-71)))$

866 $:= 17\times 2\times(9+17)-2\times 9 = (9+(2-(71-927)))-1$

867 $:= 17\times(-2-9-1+72-9) = (9+(2-(71-927)))\times 1$

868 $:= (-1+72-9)\times 1\times(7-2+9) = (9+2)-((71-927)-1)$

869 $:= 1-7+(2-9)\times(1-7\times 2\times 9) = ((9^2)+719)-(2-71)$

870 $:= (1-7+2+9)\times(-1+7)\times 29 = ((9^2)+((71\times(9+2))+7))+1$

871 $:= (-1+7\times 2)\times(-9-1+7\times(2+9)) = (927\times 1)-((9-2)\times(7+1))$

872 $:= -1-72+(91+7\times 2)\times 9 = ((9+2)+719)+(2\times 71)$

873 $:= (17-2+91-7-2)\times 9 = 9\times(27+((1^9)-(2-71)))$

874 $:= -1\times 7\times 2+917-29 = ((9-2)\times((7\times 19)+2))-71$

875 $:= 1-72+917+29 = (9\times(2\times((7\times(1^9))^2)))-(7\times 1)$

876 $:= (1-7)\times 2\times(-91+7+2+9) = 927+(((1+9)\times 2)-71)$

877 $:= 17\times 2\times(9+17)+2-9 = ((927+19)+2)-71$

878 $:= -1-7-2+917-29 = 9+((((2^7)+((1-9)/2))\times 7)+1)$

879 $:= -1\times 7-2+917-29 = ((9\times 27)-((1-92)\times 7))-1$

880 $:= 1-7-2+917-29 = (92+(7\times 1))+((9+2)\times 71)$

881 $:= 1+(72-9+17)\times(2+9) = 927-((19+27)\times 1)$

882 $:= -1-7+2+917-29 = 927-((19+27)-1)$

883 $:= 1+(7+2)\times 91+72-9 = (927\times 1)+((9\times(2-7))+1)$

884 $:= -1-7\times 2+917-2\times 9 = (92+719)+(2+71)$

885 $:= -1\times 7\times 2+917-2\times 9 = ((92-(7+1))\times 9)+((2^7)+1)$

886 $:= 1-7\times 2+917-2\times 9 = (9\times 27)-((1-(92\times 7))\times 1)$

887 $:= -17-2+917-2-9 = (9\times 27)-(1-((92\times 7)+1))$

888 $:= (1+7+29)\times(1+7\times 2+9) = (92\times(7+1))+((9^2)+71)$

889 $:= (1\times 7+2)\times(91+7)-2+9 = ((9\times 27)+1)+((92\times 7)+1)$

890 $:= -17\times 2+917-2+9 = (((927-1)-9)-27)\times 1$

891 $:= 172-9-1+729 = (9\times(27-1))+(9\times(2+71))$

892 $:= 1\times 72+91+729 = 927+((1-9)-(27\times 1))$

893 $:= 1+72+91+729 = (927+1)-(9+(27-1))$

894 $:= 1+7-2+917-29 = 927+((19\times 2)-71)$

895 $:= -1-7\times 2+917+2-9 = 927+(((1-9)/2)\times(7+1))$

896 $:= -1\times 7\times 2+917+2-9 = (9+((27\times 1)+92))\times(7\times 1)$

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$$\begin{aligned}
\mathbf{897} &:= 1\times 7+2+917-29 && = (927-(19\times 2))+(7+1)\\
\mathbf{898} &:= 1+7+2+917-29 && = (927-19)-((2+7)+1)\\
\mathbf{899} &:= (1+7+29+1-7)\times 29 && = 927-((1^{9})+(27\times 1))\\
\mathbf{900} &:= (17+2+9\times 1+72)\times 9 && = (9+2)+(7\times(1+((9\times 2)\times(7\times 1))))\\
\mathbf{901} &:= -1-7+(29\times 1+72)\times 9 && = (927\times(1^{9}))-(27-1)\\
\mathbf{902} &:= 17\times 2\times(9+17)+2\times 9 && = (927+((1^{9})-27))+1\\
\mathbf{903} &:= -1-7+2\times 91+729 && = 927-(192/(7+1))\\
\mathbf{904} &:= (17\times 2+91)\times 7+29 && = (927-(19-2))-(7-1)\\
\mathbf{905} &:= (1\times 7\times 2-9)\times(172+9) && = (927-(1+92))+71\\
\mathbf{906} &:= (1+7+2)\times 91+7-2-9 && = (927+1)-((9+(2\times 7))-1)\\
\mathbf{907} &:= 17+2+917-29 && = (9-27)-(1-(927-1))\\
\mathbf{908} &:= 1\times 7+2+917-2\times 9 && = ((9+2)\times(71+9))+(27+1)\\
\mathbf{909} &:= 1+7+2+917-2\times 9 && = (927+((1+9)-27))-1\\
\mathbf{910} &:= 172+(9+1+72)\times 9 && = (927+((1+9)-27))\times 1\\
\mathbf{911} &:= 1+729+172+9 && = ((9-27)+1)+(927+1)\\
\mathbf{912} &:= (-1+7)\times(-29+172+9) && = (927-(1+9))+((2-7)\times 1)\\
\mathbf{913} &:= -17+2+917+2+9 && = (927-(1+9))+((2-7)+1)\\
\mathbf{914} &:= 17-2+917-2\times 9 && = (92\times 7)+(((1+9)\times 27)\times 1)\\
\mathbf{915} &:= (1+7-2)\times(9\times 17-2)+9 && = 927+(((1-9)/2)-(7+1))\\
\mathbf{916} &:= 1+7+2+917-2-9 && = (927-(19-2))+(7-1)\\
\mathbf{917} &:= (-1+7\times 2)\times(9+1)\times 7-2+9 && = (9-(2-(71\times 9)))+271\\
\mathbf{918} &:= (-1+7\times 2\times(9-1)-7-2)\times 9 && = (927-19)+((2+7)+1)\\
\mathbf{919} &:= -1\times 7+2+917-2+9 && = (9\times(2+71))-(9-271)\\
\mathbf{920} &:= (-1+7-2)\times(9+1)\times(7\times 2+9) && = (927-(1^{92}))-(7-1)\\
\mathbf{921} &:= -1\times 7\times 2+917+2\times 9 && = (927-(1+9))-((2-7)+1)\\
\mathbf{922} &:= (-1+7)\times 2+917+2-9 && = (927-(1+9))-((2-7)\times 1)\\
\mathbf{923} &:= -1\times 7+2+917+2+9 && = 9+((271+(92\times 7))-1)\\
\mathbf{924} &:= (1-7)\times(2-9\times 17)+2\times 9 && = (927+(((1+9)/2)-7))-1\\
\mathbf{925} &:= 17+2+917-2-9 && = (927+1)-((9\times 2)/(7-1))\\
\mathbf{926} &:= (1+7)\times 2+917+2-9 && = 927-(1^{9271})\\
\mathbf{927} &:= 1\times(7-2+9-1)\times 72-9 && = 927\times(1^{9271})\\
\mathbf{928} &:= (1+7-2+9+17)\times 29 && = 927+(1^{9271})\\
\mathbf{929} &:= 1\times 7-2+917-2+9 && = (927+(1^{927}))+1\\
\mathbf{930} &:= (1+7-2+9)\times(-1+72-9) && = (927+19)-(2\times(7+1))\\
\mathbf{931} &:= 1\times 7\times 29-1+729 && = (((9+2)-7)-(1-927))+1\\
\mathbf{932} &:= -1\times 7\times 2+917+29 && = (927-(1^{92}))+(7-1)\\
\mathbf{933} &:= 1-7\times 2+917+29 && = (9^{2})+(71\times((9\times 2)-(7-1)))\\
\mathbf{934} &:= 1+729+1+7\times 29 && = (92\times 7)+(19+271)\\
\mathbf{935} &:= (1-7+2+9)\times 17\times(2+9) && = (92-7)\times(19-(2+(7-1)))
\end{aligned}$$

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$$\begin{aligned}
\mathbf{936} &:= -1-7-2+917+29 && = (927+(19-2))-(7+1)\\
\mathbf{937} &:= -1+7\times(-29+172-9) && = (9\times(2+71))+(9+271)\\
\mathbf{938} &:= -1+7\times(29+1)+729 && = (927+(19-2))-(7-1)\\
\mathbf{939} &:= 1+7\times(-29+172-9) && = (((9-2)+7)-(1-927))-1\\
\mathbf{940} &:= (1+7)\times 2+917-2+9 && = (927+1)+((9\times 2)-(7-1))\\
\mathbf{941} &:= 1+7-2+917+2\times 9 && = (((9-2)+7)-(1-927))+1\\
\mathbf{942} &:= 1\times 7\times 2+917+2+9 && = 9-((2-((7+1)+927))\times 1)\\
\mathbf{943} &:= (17+2+9)\times 17\times 2-9 && = (9+2)+(7-(1-(927-1)))\\
\mathbf{944} &:= 1\times 7+2+917+2\times 9 && = (((9+2)+(7\times 1))+927)-1\\
\mathbf{945} &:= 17\times(2+9\times(-1+7))+2-9 && = (((9+2)+(7\times 1))+927)\times 1\\
\mathbf{946} &:= 1+(7-2+9-1)\times 72+9 && = (927+(1-9))+(27\times 1)\\
\mathbf{947} &:= 17+2+917+2+9 && = (9+2)+(((7+1)+927)+1)\\
\mathbf{948} &:= -1+7\times 2+917+2\times 9 && = 92-(71-(927\times 1))\\
\mathbf{949} &:= (1+72)\times(-9\times 1-7+29) && = 92-(71-(927+1))\\
\mathbf{950} &:= -1+7-2+917+29 && = (927+(19-2))+(7-1)\\
\mathbf{951} &:= (1-72-9)\times(1-7)\times 2-9 && = 927+(192/(7+1))\\
\mathbf{952} &:= 1+7-2+917+29 && = (927+(19-2))+(7+1)\\
\mathbf{953} &:= -1+(72+(9+1+7)\times 2)\times 9 && = 92+(719+(2\times 71))\\
\mathbf{954} &:= -1+7+2+917+29 && = 9+((27\times 1)\times((9+27)-1))\\
\mathbf{955} &:= 17\times 2\times 9+1+72\times 9 && = 927+((1^9)+(27\times 1))\\
\mathbf{956} &:= 1+7+2+917+29 && = (((927+19)+2)+7)+1\\
\mathbf{957} &:= 1\times 7\times(-2+(9+1)\times 7\times 2)-9 && = (927+(19\times 2))-(7+1)\\
\mathbf{958} &:= 1+7\times(-2+(9+1)\times 7\times 2)-9 && = 927+((19\times 2)-(7\times 1))\\
\mathbf{959} &:= 17\times(2+9\times(-1+7))-2+9 && = 927-(((1-9)/2)\times(7+1))\\
\mathbf{960} &:= (1-7)\times 2+9\times(-1+7)\times 2\times 9 && = (927-(19\times 2))+71\\
\mathbf{961} &:= 17-2+917+29 && = (9+27)-((1-927)+1)\\
\mathbf{962} &:= (1+7)\times 2+917+29 && = 927-((1-9)-(27\times 1))\\
\mathbf{963} &:= -1\times 7-2+9\times(-1+7)\times 2\times 9 && = (927+1)+(9+(27-1))\\
\mathbf{964} &:= 1+(72+9)\times(-1+7)\times 2-9 && = (9+((27\times 1)+927))+1\\
\mathbf{965} &:= 17+2+917+29 && = ((9^2)\times(7+((1+9)/2)))-(7\times 1)\\
\mathbf{966} &:= (-1-7+29)\times(17+29) && = (9-(2-(71-9)))\times((2\times 7)\times 1)\\
\mathbf{967} &:= -1+(72+9\times 1+7)\times(2+9) && = (9-2)+((71+9)\times(2\times(7-1)))\\
\mathbf{968} &:= 1-7+2+9\times(-1+7)\times 2\times 9 && = (927-1)+((9-2)\times(7-1))\\
\mathbf{969} &:= 17\times(29+17+2+9) && = 9+((2+(71-9))\times((2\times 7)+1))\\
\mathbf{970} &:= (1+7+2)\times(9+(1+7)\times(2+9)) && = (9^2)+(7\times(1+((9\times 2)\times(7\times 1))))\\
\mathbf{971} &:= 1-7+29\times 17\times 2-9 && = (927\times 1)-((9\times(2-7))+1)\\
\mathbf{972} &:= 1+72+917-2\times 9 && = ((927+19)+27)-1\\
\mathbf{973} &:= 1\times 7\times 2\times(9+1)\times 7+2-9 && = ((927+19)+27)\times 1\\
\mathbf{974} &:= -1+7+(2+9)\times(1+7)\times(2+9) && = ((927+19)+27)+1
\end{aligned}$$

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975 $:= 1\times 7\times(-2+(9+1)\times 7\times 2)+9 = ((9-2)\times(7\times 1))+(927-1)$

976 $:= (1+7\times 2\times(9+1))\times 7-2-9 = ((9+2)-7)\times(1+(9\times(27\times 1)))$

977 $:= -1+72+917-2-9 = (927-(19+2))+71$

978 $:= (17-2-9)\times(172-9) = 927-(((1+9)\times 2)-71)$

979 $:= (1\times 72+9+1+7)\times(2+9) = ((9\times 27)\times 1)+(92\times(7+1))$

980 $:= (-1+7+29)\times(17+2+9) = ((9^2)\times(7+((1+9)/2)))+(7+1)$

981 $:= (17+2+91)\times(7+2)-9 = 9-(27\times(1-(9+(27+1))))$

982 $:= 1\times 72+917+2-9 = (927+((1-9)\times 2))+71$

983 $:= 1+72+917+2-9 = (927\times 1)+((9-2)\times(7+1))$

984 $:= (1+72+9)\times(-17+29) = ((92-7)+(19\times 2))\times(7+1)$

985 $:= (-1+72)\times(9\times 1+7-2)-9 = (((92+7)\times(1+9))+2)-(7\times 1)$

986 $:= 17\times(-2\times 9-1+7\times(2+9)) = ((927-1)-(9+2))+71$

987 $:= 1\times 7\times 2\times(9+1)\times 7-2+9 = (927\times 1)-(9+(2-71))$

988 $:= -1\times 7+29\times 17\times 2+9 = (927+1)-(9+(2-71))$

989 $:= 1-7+29\times 17\times 2+9 = (9\times((2^7)-(1+(9\times 2))))+(7+1)$

990 $:= (17+29-1)\times(-7+29) = (927-1)-(9-(2+71))$

991 $:= 1\times 7\times 2\times(9+1)\times 7+2+9 = (927\times 1)-(9-(2+71))$

992 $:= 172+91+729 = (927+(1-(9-2)))+71$

993 $:= (1+72+9)\times(-1+7)\times 2+9 = (9\times((2^7)-19))+(2\times(7-1))$

994 $:= 1\times 7\times(-2+9\times(1+7\times 2)+9) = (927+((1-9)/2))+71$

995 $:= 17\times((-2+9)\times(1+7)+2)+9 = 927-((1^9)+(2-71))$

996 $:= 1\times 72+917-2+9 = ((927\times(1^9))-2)+71$

997 $:= 17+2\times(9+1)\times 7\times(-2+9) = 9-((2-719)-271)$

998 $:= 1\times 7\times 2\times(9+1)\times 7+2\times 9 = (92\times 7)+(((19^2)-7)\times 1)$

999 $:= (17+2+91)\times(7+2)+9 = (927+(1^{92}))+71$

1000 $:= (-1+7-2)\times(9+1)\times(7+2\times 9) = ((92+7)+1)\times((9^2)-71)$

1001 $:= 1-729+1729 = (9+2)+(719+271)$

1002 $:= 1\times 7+29\times 17\times 2+9 = (92+(71\times 9))+271$

1003 $:= -17+291+729 = (927-1)+(((9+2)\times 7)\times 1)$

1004 $:= 1-7+2+(9-1)\times 7\times 2\times 9 = ((9-2)+(71+927))-1$

1005 $:= (1+7\times 2\times 9)\times(1+7)-2-9 = ((9-2)+(71+927))\times 1$

1006 $:= -1\times 72+(91+7)\times(2+9) = (927+1)+(9-(2-71))$

1007 $:= (172-9)\times(-1+7)+29 = (9\times(((2\times 7)\times 1)\times 9))-((2^7)-1)$

1008 $:= (1+7\times(2-9))\times(1+7-29) = 927-((1-9)-(2+71))$

1009 $:= 1+7\times 2\times(-9\times 1+72+9) = (9\times(2+(71+9)))+271$

1010 $:= (1+7+2)\times(9\times(1+7)+29) = 92-((7+1)-(927-1))$

1011 $:= (-1+7)\times 2\times 91-72-9 = (((927\times 1)+92)-7)-1$

1012 $:= (1+(7-2+9-1)\times 7)\times(2+9) = 92\times(71+(9+(2-71)))$

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$\mathbf{1013} := -1\times 7+291+729 = ((927+1)+92)-(7\times 1)$

$\mathbf{1014} := 1-7+291+729 = 927-(((1-9)\times 2)-71)$

$\mathbf{1015} := (1+7)\times 2\times 9\times 1\times 7-2+9 = 927+((19-2)+71)$

$\mathbf{1016} := 1+(7+2+9+17)\times 29 = (92\times(7+1))+(9+271)$

$\mathbf{1017} := -1+72+917+29 = ((((9+(2\times 7))\times 1)+9)^2)-(7\times 1)$

$\mathbf{1018} := 1+72+(91+7\times 2)\times 9 = ((9+2)+((7+1)\times(9\times(2\times 7))))-1$

$\mathbf{1019} := (1+7)\times 2\times 9\times 1\times 7+2+9 = ((927+19)+2)+71$

$\mathbf{1020} := (1+7\times 2)\times(91-7\times 2-9) = ((9+2)+((7+1)\times(9\times(2\times 7))))+1$

$\mathbf{1021} := -1+7+(2\times 9+17)\times 29 = ((9-(2^7))\times(1-9))-(2-71)$

$\mathbf{1022} := 1\times 7\times(2\times 91-7-29) = (9-2)\times((7+1)+((9+(2^7))+1))$

$\mathbf{1023} := 172\times(-9+17-2)-9 = 927-(((1-9)\times 2)\times(7-1))$

$\mathbf{1024} := 1\times 7\times 29\times 1\times(7-2)+9 = (927-(1-(92+7)))-1$

$\mathbf{1025} := -1+(7\times 2+91+7+2)\times 9 = (927-(1-(92+7)))\times 1$

$\mathbf{1026} := (172-(9-1)\times 7-2)\times 9 = (927-(1-(92+7)))+1$

$\mathbf{1027} := (1+7\times 2\times 9)\times(1+7)+2+9 = (((927+1)+92)+7)\times 1$

$\mathbf{1028} := 1+7+291+729 = (((927+1)+92)+7)+1$

$\mathbf{1029} := 1\times 7\times(-2+(9+1)\times 7\times 2+9) = (9-2)\times((7\times 19)+(2\times(7\times 1)))$

$\mathbf{1030} := -1+(7-2+9)\times(1+72)+9 = (9+((2+71)\times((9-2)+7)))-1$

$\mathbf{1031} := 1\times(7-2+9)\times(1+72)+9 = 9+(2\times((71\times 9)-2^{7\times 1}))$

$\mathbf{1032} := (1+7)\times(2+91+7+29) = (9\times((2^7)\times 1))+((9-(2^7))-1)$

$\mathbf{1033} := ((1+7)\times 2\times 9+1)\times 7+2\times 9 = ((((9\times 2)-7)+1)\times 92)-71$

$\mathbf{1034} := 17\times 2\times 9-1+729 = (9+2)\times((7-((1-(9^2))-7))\times 1)$

$\mathbf{1035} := 1\times 729+17\times 2\times 9 = ((9-(2\times 7))-(1+9))\times(2-71)$

$\mathbf{1036} := 17\times 2\times 9+1+729 = (927-19)+2^{7\times 1}$

$\mathbf{1037} := 17+291+729 = 927-((19-(2^7))-1)$

$\mathbf{1038} := (-1+7)\times(-29-1+7\times 29) = ((9-2)+(7-((1-9)\times(2^7))))\times 1$

$\mathbf{1039} := -1\times 7\times 2+9\times(-1+7\times 2)\times 9 = (9-2)+((7-((1-9)\times(2^7)))+1)$

$\mathbf{1040} := (1+7)\times 2\times 9\times(1+7)-2-9 = (9+(((2^7)\times 1)-(9-2)))\times(7+1)$

$\mathbf{1041} := 172\times(-9+17-2)+9 = (9+(2+7))-(((1-9)\times(2^7))+1)$

$\mathbf{1042} := 1\times(72-9)\times 17-29 = (9+2)+(7-((1-9)\times 2^{7\times 1}))$

$\mathbf{1043} := (1-7+2+9\times 17)\times(-2+9) = (9+(2+7))-(((1-9)\times(2^7))-1)$

$\mathbf{1044} := (1+72-9+1-7)\times 2\times 9 = (9-(27-192))\times(7-1)$

$\mathbf{1045} := (17+2)\times(91-7-29) = (((927-1)-9)+(2^7))\times 1$

$\mathbf{1046} := 1\times 7\times(-2+9\times 17)-2-9 = (((927-1)-9)+(2^7))+1$

$\mathbf{1047} := 1-7+((-2+9)\times 17-2)\times 9 = ((927\times 1)-(9-(2^7)))+1$

$\mathbf{1048} := -1-7+(-2+91+7)\times(2+9) = 927+(192-71)$

$\mathbf{1049} := -1-7+(2-9\times 17)\times(2-9) = (((9-2)\times(71+9))\times 2)-71$

$\mathbf{1050} := 1\times 7\times(29+1)\times(7\times 2-9) = (9-2)\times((((7-19)^2)+7)-1)$

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$\mathbf{1051} := 1\times 7+29\times 1\times(7+29) = 9+(((2+(7\times(19+2)))\times 7)-1)$

$\mathbf{1052} := (172+91)\times(-7+2+9) = (927-1)+((9\times 2)\times(7\times 1))$

$\mathbf{1053} := (17+2)\times(9-1)\times 7-2-9 = 9+(((2+(7\times(19+2)))\times 7)+1)$

$\mathbf{1054} := 17\times 2\times(9-1+7\times 2+9) = ((9\times((2^7)-19))+2)+71$

$\mathbf{1055} := (1\times 7-2)\times(9-1+7\times 29) = (((9\times 2)-(7-1))\times((9^2)+7))-1$

$\mathbf{1056} := (1+7)\times(2+9)\times(-17+29) = ((9-2)\times(((7-19)^2)+7))-1$

$\mathbf{1057} := (172+9)\times(-1+7)-29 = ((9-2)\times(((7-19)^2)+7))\times 1$

$\mathbf{1058} := 1+7\times(-2+9+(1+7)\times 2\times 9) = ((9-2)\times(((7-19)^2)+7))+1$

$\mathbf{1059} := -1+7+((-2+9)\times 17-2)\times 9 = 927+(((1+(9\times 2))\times 7)-1)$

$\mathbf{1060} := 172+917-29 = (9+2^{7+1})\times((9+(2-7))\times 1)$

$\mathbf{1061} := (17-2)\times(9+1)\times 7+2+9 = (((9\times((2\times 7)\times 1))\times 9)-2)-71$

$\mathbf{1062} := (1\times 7+2)\times(-9+1+7\times 2\times 9) = (9-27)\times(1+((9+2)-71))$

$\mathbf{1063} := -17+(29+1)\times(7+29) = (927-1)+(9+2^{7\times 1})$

$\mathbf{1064} := 1+7+(-2+91+7)\times(2+9) = (((92-7)\times 1)-9)\times(2\times(7\times 1))$

$\mathbf{1065} := 1+(72-9)\times 17+2-9 = ((927+1)+9)+2^{7\times 1}$

$\mathbf{1066} := (-1+7-2+9)\times(1+72+9) = (9-((2-7)+1))\times((9\times(2+7))+1)$

$\mathbf{1067} := 1\times 7\times(2+9\times 17)-2\times 9 = (9\times(((2^7)\times 1)-9))+((2-7)+1)$

$\mathbf{1068} := 1\times 7\times(-2+9\times 17)+2+9 = (((9\times 2)-(7-1))\times(((9^2)+7)+1)$

$\mathbf{1069} := -1\times 72\times(-9+1-7)-2-9 = (9\times(27-(1-92)))+(7\times 1)$

$\mathbf{1070} := -1+(7+(-2+9+1)\times 7\times 2)\times 9 = (927-1)+((9\times 2)\times(7+1))$

$\mathbf{1071} := 172+917-2\times 9 = ((9^2)+719)+271$

$\mathbf{1072} := 1+(7+(-2+9+1)\times 7\times 2)\times 9 = 92+((7\times((1+9)\times(2\times 7)))\times 1)$

$\mathbf{1073} := 17+(-2+91+7)\times(2+9) = (92+(7\times((1+9)\times(2\times 7))))+1$

$\mathbf{1074} := (-1+7)\times 2\times 91-7-2-9 = (927+19)+2^{7\times 1}$

$\mathbf{1075} := (17+2)\times(9-1)\times 7+2+9 = (((9\times(2^7))+1)-(9-2))-71$

$\mathbf{1076} := (-1+72)\times(9-1+7)+2+9 = ((9\times(2^7))-((1+(9^2))-7))-1$

$\mathbf{1077} := (1+72-9)\times 17-2-9 = ((927-1)+9)+(2\times 71)$

$\mathbf{1078} := (-1-7+29+1)\times 7\times(-2+9) = (9+(2\times 71))+(927\times 1)$

$\mathbf{1079} := 1-7+(2+9\times 17)\times(-2+9) = ((9^2)-((7\times 1)-9))\times((2\times 7)-1)$

$\mathbf{1080} := (172+9\times(1-7)+2)\times 9 = (9\times(2^7))-((1^{92})+71)$

$\mathbf{1081} := (1+72-9)\times 17+2-9 = (9+(2\times 7))\times((19+27)+1)$

$\mathbf{1082} := (1\times 72-9)\times 17+2+9 = 92+(719+271)$

$\mathbf{1083} := 1+(72-9)\times 17+2+9 = (9+((((2^7)-1)\times 9)+2))-71$

$\mathbf{1084} := 1+7-2+(91+7)\times(2+9) = ((9+(2\times 7))-19)\times 271$

$\mathbf{1085} := (1-72-91+7)\times(2-9) = (9\times(((2^7)\times 1)-9))+((2\times 7)\times 1)$

$\mathbf{1086} := (-1+7)\times((29+1)\times 7-29) = (9+((2\times 7)\times(1+(9^2))))-71$

$\mathbf{1087} := 1\times 7\times 2\times(91-7\times 2)+9 = (9\times(2^7))-((1-(9-2))+71)$

$\mathbf{1088} := (-1+7)\times 2\times 91+7-2-9 = (927+19)+(2\times 71)$

$\mathbf{1089} := (17+2\times(9+17)\times 2)\times 9 = 927-((1-92)-71)$

$\mathbf{1090} := 17+2-9\times 17\times(2-9) = 92+((71+927)\times 1)$

$\mathbf{1091} := 1\times 72\times(9-1+7)+2+9 = 92+((71+927)+1)$

$\mathbf{1092} := 1\times 7\times(2+91+72-9) = (((9-2)\times 7)-(1+9))\times(27+1)$

$\mathbf{1093} := 1+7\times 2+(91+7)\times(2+9) = 9-(2\times(((7\times 1)-9)\times 271))$

$\mathbf{1094} := (1+7)\times 2+(91+7)\times(2+9) = (((9\times 2)-7)\times(1+92))+71$

$\mathbf{1095} := (17-2)\times(-9+1+72+9) = 927+((19+2)\times(7+1))$

$\mathbf{1096} := 172+917-2+9 = (9\times((2^7)\times 1))-((9-2)\times(7+1))$

$\mathbf{1097} := 17+(29+1)\times(7+29) = (927+(19\times(2+7)))-1$

$\mathbf{1098} := (1\times 72+(9+1)\times(7-2))\times 9 = (927+(19\times(2+7)))\times 1$

$\mathbf{1099} := (17+2\times(9+1)\times 7)\times(-2+9) = (927+(19\times(2+7)))+1$

$\mathbf{1100} := (1\times 72-9)\times 17+29 = ((9+2)-7)\times(19+2^{7+1})$

$\mathbf{1101} := (17-2)\times(9\times(1+7)+2)-9 = (92+(((7-19)^2)\times 7))+1$

$\mathbf{1102} := (17+2)\times(9\times 1-7)\times 29 = ((9\times 2)\times(71-9))-((2\times 7)\times 1)$

$\mathbf{1103} := 1\times 7\times(2+9\times 17)+2\times 9 = (9\times(2\times(71-9)))-((2\times 7)-1)$

$\mathbf{1104} := (-1+7)\times(2+9\times 17+29) = (9\times(2^7))-((1-9)\times(2-(7+1)))$

$\mathbf{1105} := 17\times(-2\times(9-1)+72+9) = ((9+((2^7)\times 1))\times 9)-((2^7)\times 1)$

$\mathbf{1106} := 1\times 7\times((2+9)\times 17-29) = (9\times((2\times 7)-(19-(2^7))))-1$

$\mathbf{1107} := 172+917+2\times 9 = 9\times(((2\times 7)-(19-(2^7)))\times 1)$

$\mathbf{1108} := 1\times 7\times(2+9\times 17+2)+9 = (9\times((2\times 7)-(19-(2^7))))+1$

$\mathbf{1109} := 1\times 72\times(9-1+7)+29 = (92-7)-((1-9)\times 2^{7\times 1})$

$\mathbf{1110} := (-1+7)\times(2+9-(1-7)\times 29) = ((9\times(2\times(71-9)))+(2-7))-1$

$\mathbf{1111} := (1+7+2+91)\times(-7+2\times 9) = (927+(192-7))-1$

$\mathbf{1112} := (-1+7^2+91)\times 72/9 = (927+(192-7))\times 1$

$\mathbf{1113} := -1^7+2\times(-91+72\times 9) = (927+192)-(7-1)$

$\mathbf{1114} := 1^7\times 2\times(-91+72\times 9) = 92+(7\times((19+(2^7))-1))$

$\mathbf{1115} := -17\times 2+91\times 7+2^9 = (9\times((2^7)+(1+9)))-((2^7)-1)$

$\mathbf{1116} := (1\times 7+2)\times(9\times 17-29) = (9\times((2^7)+1))+((9\times(2-7))\times 1)$

$\mathbf{1117} := 1+(7+2)\times(9\times 17-29) = (((9\times(2^7))\times 1)-9)-(27-1)$

$\mathbf{1118} := 172+917+29 = (9-((2-7)+1))\times(92-(7-1))$

$\mathbf{1119} := -17+2+9\times 1\times 7\times 2\times 9 = (9+((2\times(7-1))\times 92))+(7-1)$

$\mathbf{1120} := (1+7+2\times(9+1))\times(7^2-9) = ((9+((2\times(7-1))\times 92))+7)\times 1$

$\mathbf{1121} := 1+7^2+9\times 17\times(-2+9) = ((9+2)\times(7-(19\times(2-7))))-1$

$\mathbf{1122} := 1+7-2\times(91-72\times 9) = ((9+2)\times(7-(19\times(2-7))))\times 1$

$\mathbf{1123} := 1\times 7+2\times 9\times(-1+72-9) = ((9+2)\times(7-(19\times(2-7))))+1$

$\mathbf{1124} := -17+(-2+9)\times(172-9) = 92+((7+(1^9))\times((2^7)+1))$

$\mathbf{1125} := (172-91)\times 7\times 2-9 = (927+192)+(7-1)$

$\mathbf{1126} := 1-7+2\times(9\times(-1+7)+2^9) = (((9\times(2^7))-1)-9)-(2\times(7+1))$

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$\mathbf{1127} := 1\times 7\times(-2+9\times 1)\times(7\times 2+9) = 927+((192+7)+1)$

$\mathbf{1128} := -1-7+2+9\times 1\times 7\times 2\times 9 = ((9\times(2^7))-19)+(2-(7\times 1))$

$\mathbf{1129} := (1+7)\times(29-1)\times(7-2)+9 = (9\times(2\times(71-9)))+((2\times 7)-1)$

$\mathbf{1130} := 1-7\times 2+9\times(1+7\times 2\times 9) = (((9\times(2^7))-1)-9)-(2\times(7-1))$

$\mathbf{1131} := 17+2\times(-91+72\times 9) = ((((9\times(2\times 7))-1)\times 9)-2)+(7+1)$

$\mathbf{1132} := (-1-7+291)\times(-7+2+9) = (9-(27+1))+((9\times(2^7))-1)$

$\mathbf{1133} := -1^7+2\times(-9\times 1+72)\times 9 = (9\times((27-1)+92))+71$

$\mathbf{1134} := (-1+72-9+1)\times(7+2+9) = ((9-2)\times(7+((1+9)\times 2)))\times(7-1)$

$\mathbf{1135} := -17+2\times(-9+1+72)\times 9 = ((9-27)+1)+(9\times((2^7)\times 1))$

$\mathbf{1136} := (1+7)\times(2\times(9-1)+7\times 2\times 9) = (((9\times 2)\times(7-1))-92)\times 71$

$\mathbf{1137} := (-17+2\times 91)\times 7-2\times 9 = ((9\times((2^7)\times 1))-(9-2))-(7+1)$

$\mathbf{1138} := 17\times(-2+(9+1)\times 7)-2\times 9 = ((9\times(2^7))-19)-(2-(7\times 1))$

$\mathbf{1139} := -(1+7)/2+9\times(1+7\times 2\times 9) = (9\times(2^7))-((1+((9\times 2)-7))+1)$

$\mathbf{1140} := -(-1+7)/2+9\times(1+7\times 2\times 9) = (9+(2-71))\times(9-(27+1))$

$\mathbf{1141} := (-1+72/9)\times(172-9) = ((9\times(2^7))-1)-(((9\times 2)-7)-1)$

$\mathbf{1142} := 1+7-2\times(9\times 1-72)\times 9 = (9\times(2^7))-(19-(2+(7\times 1)))$

$\mathbf{1143} := (172-91)\times 7\times 2+9 = ((9^2)\times(7-1))+(9\times(2+71))$

$\mathbf{1144} := 1+7+2+9\times 1\times 7\times 2\times 9 = (9+2)\times((7-(1-(92+7)))-1)$

$\mathbf{1145} := 1-7+2+91\times 7+2^9 = (9\times(2\times 71))+(9-(2\times 71))$

$\mathbf{1146} := 1+72\times(9\times 1+7)+2-9 = ((9\times(2^7))+(1^{92}))-(7\times 1)$

$\mathbf{1147} := -1+7+(-2+9)\times(172-9) = ((9\times(2^7))+(1+9))-((2\times 7)+1)$

$\mathbf{1148} := (172-9\times 1)\times 7-2+9 = (((9\times(2^7))-1)-9)-(2-(7+1))$

$\mathbf{1149} := 17-2+9\times 1\times 7\times 2\times 9 = ((9\times(2^7))\times 1)+(9-(2\times(7-1)))$

$\mathbf{1150} := (1+7)\times 2+9\times 1\times 7\times 2\times 9 = (9\times((2^7)+1))-((9\times 2)-(7\times 1))$

$\mathbf{1151} := (-1+72)\times 9+1^7\times 2^9 = ((9\times 2)\times 71)-(((9\times 2)\times 7)+1)$

$\mathbf{1152} := 1\times 72\times(9-1+72/9) = (9\times 2)\times(((7\times 19)+2)-71)$

$\mathbf{1153} := 17+2+9\times 1\times 7\times 2\times 9 = 9+(2+(((71+92)\times 7)+1))$

$\mathbf{1154} := 1-7+2^9\times 1+72\times 9 = (((9\times(2^7))-1)-9)+(2\times(7-1))$

$\mathbf{1155} := (17-2)\times(91-7+2-9) = (9+2)\times(((7\times 1)+92)+(7-1))$

$\mathbf{1156} := 17\times 2\times(-9+17\times 2+9) = (9\times(2^7))+(1-(9-(2\times(7-1))))$

$\mathbf{1157} := -1+7+2+91\times 7+2^9 = 92+(((71+(9^2))\times 7)+1)$

$\mathbf{1158} := 1\times 7+2+91\times 7+2^9 = (((9\times(2^7))-1)-9)+(2\times(7+1))$

$\mathbf{1159} := -1+(7\times 2+9+17)\times 29 = (((9\times(2^7))+(1^{92}))+7)-1$

$\mathbf{1160} := (1\times 7\times 2+9+17)\times 29 = (((9\times 2)\times 7)+19)\times((2+7)-1)$

$\mathbf{1161} := 1+(7\times 2+9+17)\times 29 = (9+((2^7)+(1-9)))\times((2+7)\times 1)$

$\mathbf{1162} := 1+72\times 9+1^7+2^9 = ((9\times(2^7))+(1^9))+((2+7)\times 1)$

$\mathbf{1163} := 1-7+2^9+(1+72)\times 9 = (((9\times 2)-7)+1)+((9\times(2^7))-1)$

$\mathbf{1164} := 1^7+(2+91)\times 7+2^9 = ((((9^2)\times 7)+19)\times 2)-(7+1)$

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$\mathbf{1165} := 1\times 7\times 2\times(91-7)-2-9 = 9+((((2^7)\times 1)\times 9)-((2-7)+1))$

$\mathbf{1166} := 1\times 72\times 9-1+7+2^9 = (9\times((2^7)+1))+(9+(2-(7-1)))$

$\mathbf{1167} := 1\times 7\times(2+9+1)\times 7\times 2-9 = (9\times((2^7)\times 1))+((9-2)+(7+1))$

$\mathbf{1168} := 17+2^9+(-1+72)\times 9 = 927-(1-((9\times 27)-1))$

$\mathbf{1169} := -1+729+1\times 7^2\times 9 = (927\times 1)+((9\times 27)-1)$

$\mathbf{1170} := 1\times 729+1\times 7^2\times 9 = (9-(2-(7+1)))\times((9-2)+71)$

$\mathbf{1171} := 1+729+1\times 7^2\times 9 = 927+((1+(9\times 27))\times 1)$

$\mathbf{1172} := 1\times 7+(2\times(9+1+7))^2+9 = (9\times(((2^7)+(1^9))+2))-(7\times 1)$

$\mathbf{1173} := 17\times(-2-9-1+72+9) = (927-1)-(9-2^{7+1})$

$\mathbf{1174} := 17\times(-2+(9+1)\times 7)+2\times 9 = ((9\times((2^7)+1))+9)-(2-(7-1))$

$\mathbf{1175} := (1+72)\times 9-1+7+2^9 = ((((9\times 2)-7)+1)\times 92)+71$

$\mathbf{1176} := (1-7)\times(2-9)\times(-1^7+29) = ((9+(2\times 7))\times 1)+((9\times(2^7))+1)$

$\mathbf{1177} := 17^2+917-29 = (9\times((2^7)\times 1))+((9\times 2)+(7\times 1))$

$\mathbf{1178} := (-1+72)\times(9+1+7)-29 = (9\times(((27\times 1)/9)+(2^7)))-1$

$\mathbf{1179} := (17+2)\times 9\times 1\times 7-2\times 9 = (927-19)+271$

$\mathbf{1180} := -1+72\times(9\times 1+7)+29 = (9\times(27+1))+(927+1)$

$\mathbf{1181} := -17\times 2+9\times(17-2)\times 9 = 9-(2\times(71-(9\times(2+71))))$

$\mathbf{1182} := -1+7\times 2\times(91-7)-2+9 = ((9\times 2)\times((7-1)\times(9+2)))-(7-1)$

$\mathbf{1183} := (-1+7\times 2)\times 91-7-2+9 = (9\times(2^7))+(((19\times 2)-7)\times 1)$

$\mathbf{1184} := (-17+2\times 91)\times 7+29 = ((9\times(2^7))+19)+((2\times 7)-1)$

$\mathbf{1185} := 1\times 7\times(2+9+1)\times 7\times 2+9 = 9+((2\times 7)\times((1+(9+2))\times(7\times 1)))$

$\mathbf{1186} := 1-7+2\times(91-7+2^9) = (9\times(((2^7)+(1^9))+2))+(7\times 1)$

$\mathbf{1187} := -1-72+(9+1)\times 7\times 2\times 9 = 927+((1+9)\times(27-1))$

$\mathbf{1188} := (-1+7)\times 2\times((9+1)\times 7+29) = 927-((1+9)-271)$

$\mathbf{1189} := 1-72+(9+1)\times 7\times 2\times 9 = (((9\times 2)+(7+19))\times 27)+1$

$\mathbf{1190} := 17\times(2+9+1+7^2+9) = 927+(192+71)$

$\mathbf{1191} := (17-2)\times(9-1+72)-9 = (927-1)+(9+2^{7+1})$

$\mathbf{1192} := (-1+7)\times(291-7)-2^9 = (9-(2^7))-(19\times(2-71))$

$\mathbf{1193} := 1+(7^2-9)\times 17+2^9 = (9+((((2\times 7)-(1^9))^2)\times 7))+1$

$\mathbf{1194} := 1+7\times 2\times 91-72-9 = ((9\times 2)\times((7-1)\times(9+2)))+(7-1)$

$\mathbf{1195} := 17^2+917-2-9 = (9\times(2^7))-((1+(9\times(2-7)))+1)$

$\mathbf{1196} := (1+7+2\times 9)\times(17+29) = (((9+27)+1)+9)\times(27-1)$

$\mathbf{1197} := (-1+72-9-1+72)\times 9 = (9-2)\times((7+1)+(92+71))$

$\mathbf{1198} := 1+(72-9)\times(1+7+2+9) = (927\times(1^9))+271$

$\mathbf{1199} := 17^2+917+2-9 = ((((92\times 7)\times 1)-9)\times 2)-71$

$\mathbf{1200} := -17-2^9+1729 = (9\times(2^7))+((1-9)\times(2-(7+1)))$

$\mathbf{1201} := 172\times(9+1)-7-2^9 = (92\times((7\times 1)+9))-271$

$\mathbf{1202} := 1-7\times 2+9\times(17-2)\times 9 = ((9-2)\times(7\times 19))+271$

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1203 $:= -1+7+(-2+9\times(17-2))\times 9 = (9\times(2^7))+(1+(((9-2)\times 7)+1))$

1204 $:= (-1\times 7+2+91)\times(7-2+9) = (9-2)+((7\times 19)\times(2+(7\times 1)))$

1205 $:= -1+72\times(9+1+7)-2\times 9 = (9\times(2+(7\times 19)))-((2+7)+1)$

1206 $:= (1+7-2\times(9\times 1-72))\times 9 = ((927-1)+9)+271$

1207 $:= 1+72\times(9+1+7)-2\times 9 = (9+(271+927))\times 1$

1208 $:= -1-7+2\times(91\times 7-29) = (927+1)+(9+271)$

1209 $:= 1729-1-7-2^9 = (((9-((2-7)-1))\times(9^2))-7)+1$

1210 $:= (17+2+91)\times(-7+2\times 9) = ((9^2)\times((7-1)+9))+(2-(7\times 1))$

1211 $:= 1729+1-7-2^9 = ((92\times 7)\times 1)+((9^2)\times(7\times 1))$

1212 $:= 1+7\times 29\times(-1+7)+2-9 = (9\times(2\times 71))-((9+2)\times(7-1))$

1213 $:= (-1\times 7+2+91)\times 7\times 2+9 = (9\times(2^7))+(((1-9)-2)+71)$

1214 $:= 1+(-7+2+91)\times 7\times 2+9 = ((9-2)-71)+(9\times(2\times 71))$

1215 $:= -1^7+(29-1+7)^2-9 = 9\times((2-((7-1)-9))\times(27\times 1))$

1216 $:= (1+7)^2\times(9-1-7+2\times 9) = (((9-2)-7)+19)\times 2^{7-1}$

1217 $:= 17^2+917+2+9 = (927+19)+271$

1218 $:= (-1+7)\times 2\times 91+7\times 2\times 9 = (9+2)+((71\times(9\times 2))-71)$

1219 $:= 1+(7^2+9)\times(-1-7+29) = (((9+27)-(1^9))^2)-(7-1)$

1220 $:= -1+72+91\times 7+2^9 = ((9^2)\times((7-1)+9))-(2-(7\times 1))$

1221 $:= -1+729+17\times 29 = (((9-2)+(71\times 9))\times 2)-71$

1222 $:= 1\times 729+17\times 29 = (92-((7\times 1)-9))\times((2\times 7)-1)$

1223 $:= 1+729+17\times 29 = ((9-((2-7)-1))\times(9^2))+(7+1)$

1224 $:= 1-(7+(2-91)\times 7)\times 2-9 = (9\times(2^7))+((1^{92})+71)$

1225 $:= 1+7-2^9+1729 = (9+((((2^7)-1)\times 9)+2))+71$

1226 $:= 1+7\times 2\times 91+7\times(2-9) = 92-(7\times(1-(92+71)))$

1227 $:= 1\times 7+2\times(91+7+2^9) = (9\times((2\times(7+1))\times 9))+(2-71)$

1228 $:= (17\times 2\times 9+1)\times(-7+2+9) = (9+((2\times 7)\times(1+(9^2))))+71$

1229 $:= 1\times 7\times 2+9\times(17-2)\times 9 = (9\times(2^7))-((1-(9-2))-71)$

1230 $:= (1^7+29)\times(1+7^2-9) = ((9\times(2^7))+(1+((9+2)\times 7)))\times 1$

1231 $:= 17\times(2+(9+1)\times 7)-2+9 = 927+((19\times 2)\times(7+1))$

1232 $:= (1\times 7-29)\times(1+7)\times(2-9) = (9-(2-7))\times((19-2)+71)$

1233 $:= 1+(7-29)\times(1+7)\times(2-9) = ((((9+27)-(1^9))^2)+7)+1$

1234 $:= 17-2^9+1729 = (9\times((2^7)+(1^9)))+(2+71)$

1235 $:= 1\times 729+1-7+2^9 = (92+7)-((1-9)\times(2\times 71))$

1236 $:= 1729-17\times 29 = (((92-7)\times 1)+(9\times(2^7)))-1$

1237 $:= -1^7+2\times(91\times 7-2\times 9) = (((92-7)\times 1)+(9\times(2^7)))\times 1$

1238 $:= 1^7\times 2\times(91\times 7-2\times 9) = ((9-(2\times(7+(1-92))))\times 7)-1$

1239 $:= -1+7+(2+9\times(17-2))\times 9 = ((9-(2\times(7+(1-92))))\times 7)\times 1$

1240 $:= (1+7)\times(29+1\times 7\times 2\times 9) = ((9^2)+((7+1)+(9\times(2^7))))-1$

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1241 $:= 17+2\times((9+1)\times 7-2)\times 9 = (9^2)+(((7+1)+(9\times(2^7)))\times 1)$

1242 $:= -17\times 2\times 9+172\times 9 = 9\times((271+9)-(2\times 71))$

1243 $:= 172+9\times 17\times(-2+9) = (9\times(2\times 71))-(9+(27-1))$

1244 $:= -1^7+2\times 91\times 7-29 = 9-((2-7)\times(19\times((2\times 7)-1)))$

1245 $:= -17+2+(9+1)\times 7\times 2\times 9 = (((9+(2^7))\times 1)\times 9)+(2\times(7-1))$

1246 $:= 1\times 7\times((29-1)\times 7-2\times 9) = ((9^2)+(7+1))\times((9-2)+(7\times 1))$

1247 $:= 1\times 729-1+7+2^9 = ((9+((2^7)\times 1))\times 9)+((2\times 7)\times 1)$

1248 $:= -1+7+2^9+1+729 = (9\times(((2\times 7)\times(1+9))-2))+(7-1)$

1249 $:= 1\times 7\times 2\times 91-7-2\times 9 = 92+((7-(1-(9\times(2^7))))-1)$

1250 $:= 172\times 9-17^2-9 = (((9-2)\times 7)+1)\times((9\times 2)+(7\times 1))$

1251 $:= 1+(7-2)\times(9+1)\times(7+2\times 9) = 9-(((27\times 1)-9)\times(2-71))$

1252 $:= 1-7-2+(91+7^2)\times 9 = (9+2)+(((7+1)+9)\times(2+71))$

1253 $:= (17-2)\times(91-7)+2-9 = (((9\times 2)\times 71)-(9\times 2))-(7\times 1)$

1254 $:= (-1+7^2+9)\times 1\times(-7+29) = (9\times(2\times 71))-((9\times 2)+(7-1))$

1255 $:= -1+7\times 2\times 91-7-2-9 = 9-(((2\times 7)-192)\times(7\times 1))$

1256 $:= 1\times 7\times 2\times 91-7-2-9 = ((9\times(2\times 7))\times(1+9))+((2-7)+1)$

1257 $:= 1+7\times 2\times 91-7-2-9 = (9\times(2\times 71))-(92-71)$

1258 $:= 17+2^9+1\times 729 = ((9+2)+(7-1))\times(((9^2)-7)\times 1)$

1259 $:= 17+2^9+1+729 = 9-(27+(1-((9\times 2)\times 71)))$

1260 $:= (1\times 7+29-1)\times(7+29) = (9+((2+7)+192))\times(7-1)$

1261 $:= 1+7\times 2\times 91-7+2-9 = 9+((2\times(71\times 9))-(27-1))$

1262 $:= -1+7+2\times 91\times 7-2\times 9 = ((9\times(2^7))-(19-(2^7)))+1$

1263 $:= 1+7+(-2+91)\times 7\times 2+9 = (9\times(2\times 71))-((9-2)+(7+1))$

1264 $:= 1+7+2\times 91\times 7-2\times 9 = ((92\times 7)-1)-(9\times(2-71))$

1265 $:= -1+7\times 2\times 91-72/9 = (9-(271-9))\times(2-(7\times 1))$

1266 $:= 1\times 7\times 2\times 91-72/9 = ((9\times 2)\times 71)-(((9\times 2)-7)+1)$

1267 $:= (17-2)\times(91-7)-2+9 = (((9\times 2)\times 71)-(9\times 2))+(7\times 1)$

1268 $:= -17^2+9+172\times 9 = (((9\times 2)\times 71)-(9\times 2))+(7+1)$

1269 $:= 1\times 7+2+(91+7^2)\times 9 = ((9^2)\times(7+1))-(9\times(2-71))$

1270 $:= 1-7+2+91\times(7-2+9) = ((9\times((2^7)\times 1))-(9-(2^7)))-1$

1271 $:= (17-2)\times(91-7)+2+9 = (9\times((2^7)\times 1))-((9-(2^7))\times 1)$

1272 $:= (1+(((72\times 9)-17)\times 2))+9 = ((9\times((2^7)\times 1))-9)+((2^7)+1)$

1273 $:= -1^{72}+91\times(7-2+9) = (((9\times(2^7))+1)-9)+((2^7)+1)$

1274 $:= 1\times 7\times 2\times(91+7+2-9) = (9-((2\times 7)-1))+((9\times 2)\times 71)$

1275 $:= 1+7\times 2+(9+1)\times 7\times 2\times 9 = (9\times(2\times 71))-((9+2)-(7+1))$

1276 $:= 17\times(2+9\times(1+7))+2\times 9 = ((92-7)\times((1+(9-2))+7))+1$

1277 $:= -17-2+9\times(1+7)\times 2\times 9 = (9\times((2^7)\times 1))+(((9\times 2)\times 7)-1)$

1278 $:= (-1^7-29+172)\times 9 = 9\times((2\times(71\times 9))/(2+(7\times 1)))$

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1279 $:= 1-7+2\times 91\times 7+2+9 = 9+((((2^7)-1)\times 9)+((2^7)-1))$

1280 $:= -1\times 7+(-29+172)\times 9 = (92\times 7)-(((1-92)\times 7)+1)$

1281 $:= 1^7\times 2\times 91\times 7-2+9 = ((9+2)-7)-(1-((9\times 2)\times 71))$

1282 $:= 1^7+2\times 91\times 7-2+9 = (9+((2\times(71\times 9))+2))-(7\times 1)$

1283 $:= 1+7\times 2\times 91+72/9 = ((9+2)-7)+(1+((9\times 2)\times 71))$

1284 $:= 17+2+91\times 7\times 2-9 = ((9+2)+(7\times 192))-71$

1285 $:= 1\times 7\times 2\times 91-7+2\times 9 = (9-(2\times(7\times 19)))\times((2-7)\times 1)$

1286 $:= (-1+72)\times 9-1+72\times 9 = (92\times 7)-((1-(92\times 7))+1)$

1287 $:= 1\times 7+2^{9-1}\times 7-2^9 = (9\times((2^7)+1))+((9\times 2)\times(7\times 1))$

1288 $:= (17+29)\times(-1^7+29) = (9\times 2)-(7+(1-((9\times 2)\times 71)))$

1289 $:= (1+7^2)\times(9+17)-2-9 = ((92\times 7)+1)+((92\times 7)\times 1)$

1290 $:= (1+7)\times 2+91\times(7-2+9) = (9\times((2\times 71)+9))+(2-71)$

1291 $:= 1\times(-7+2)+9\times(1+7)\times 2\times 9 = ((9-2)+(71\times(9\times 2)))+(7-1)$

1292 $:= 1\times 7+2+91\times 7\times 2+9 = 9-(2-(((71\times 9)\times 2)+(7\times 1)))$

1293 $:= 1^7\times(2+91)\times 7\times 2-9 = (((9+2)+(71\times 9))\times 2)-(7\times 1)$

1294 $:= 17\times(29+17)+2^9 = (92\times 7)+(((1+92)\times 7)-1)$

1295 $:= -172+(91+72)\times 9 = 927+(((19^2)+7)\times 1)$

1296 $:= (-1+7)^{2-9\times 1-7+2\times 9} = (9\times(2\times 71))-((9-27)\times 1)$

1297 $:= 1+72\times 9+1\times 72\times 9 = (9\times(2\times 71))+((9+2)+(7+1))$

1298 $:= -1\times 7+2\times 9\times 1\times 72+9 = ((9\times(2-7))+(192\times 7))-1$

1299 $:= 1\times 7+2\times 91\times 7+2\times 9 = (9\times(2^7))+((19+2)\times(7\times 1))$

1300 $:= 1+7+2\times 91\times 7+2\times 9 = 9+(((2\times 7)-1)+((9\times 2)\times 71))$

1301 $:= -1-7+(2+9)\times 17\times(-2+9) = (9\times(2+71))+((92\times 7)\times 1)$

1302 $:= (17-2)\times 91-72+9 = ((9\times 2)+(7+192))\times(7-1)$

1303 $:= (1+7+2+91\times 7)\times 2+9 = ((9\times(2\times 71))+9)+(2\times(7+1))$

1304 $:= (-1^{72}+9)\times(172-9) = ((9^2)+71)+((9\times(2^7))\times 1)$

1305 $:= 1\times 72\times 9+(1+72)\times 9 = (9-(2\times 7))\times((1+9)-271)$

1306 $:= 172+9\times 1\times 7\times 2\times 9 = (9+2)-((7-192)\times(7\times 1))$

1307 $:= -1\times 7+2\times 9\times((1+7)^2+9) = (((9+2)+(71\times 9))\times 2)+(7\times 1)$

1308 $:= (-1+7)\times 2+9\times(1+7)\times 2\times 9 = 92+((7+1)\times((9^2)+71))$

1309 $:= 1\times 7+(2+91)\times(7-2+9) = ((9+2)\times(7\times 1))\times(9+((2+7)-1))$

1310 $:= 1+7^2+(9+1)\times 7\times 2\times 9 = (9-271)\times((9-(2\times 7))\times 1)$

1311 $:= (1+7^2)\times(9+17)+2+9 = 9-(2-((7+1)\times(92+71)))$

1312 $:= (172-9+1)\times 72/9 = ((9\times 2)\times(71+9))-2^{7\times 1}$

1313 $:= -1+(72+9-1-7)\times 2\times 9 = (9+2)+(7\times((192-7)+1))$

1314 $:= 1\times 7^2+91\times 7\times 2-9 = 9+((2-7)\times((1+9)-271))$

1315 $:= -1+7+(-2+9)\times 17\times(2+9) = (9+27)+(1+((9\times 2)\times 71))$

1316 $:= 1\times 7\times(-2+9+172+9) = (((92-7)\times 1)+9)\times(2\times(7\times 1))$

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$$\begin{aligned}
\mathbf{1317} &:= 17\times 2+91\times 7\times 2+9 && = 9+(((2^7)-19)\times(2\times(7-1)))\\
\mathbf{1318} &:= 1\times 7+(2+91)\times 7\times 2+9 && = 9+((2-(7-192))\times(7\times 1))\\
\mathbf{1319} &:= (17+2)\times(9+1)\times 7-2-9 && = (9+(2\times 719))-2^{7\times 1}\\
\mathbf{1320} &:= (-1+7)\times 2\times(9+1)\times(-7+2\times 9) && = (((9^2)+7)\times 1)\times(9-(2-(7+1)))\\
\mathbf{1321} &:= 1\times 7+2\times 9\times((1+7)^2+9) && = ((9+2)\times(71+((9-2)\times 7)))+1\\
\mathbf{1322} &:= 1+7+(2\times 9\times(1+7)+2)\times 9 && = (9\times 2)+((71+92)\times(7+1))\\
\mathbf{1323} &:= (-1\times 7+(2+9)\times 1\times 7\times 2)\times 9 && = ((9\times 2)\times 71)-(9\times(2-(7\times 1)))\\
\mathbf{1324} &:= 1+7\times 2\times 91+7\times(-2+9) && = (9\times(2^7))+((19\times(2+7))+1)\\
\mathbf{1325} &:= -1\times 7+2\times(91\times 7+29) && = (9\times((2\times 71)-9))+((2^7)\times 1)\\
\mathbf{1326} &:= (1+7)\times 2\times(91-7)-2\times 9 && = (9-27)+(192\times(7\times 1))\\
\mathbf{1327} &:= 17\times(2+9)\times 1\times 7+2\times 9 && = (9-27)+((192\times 7)+1)\\
\mathbf{1328} &:= (1+7)\times 2\times(91-72/9) && = ((9\times 2)\times 71)+(((9-2)\times 7)+1)\\
\mathbf{1329} &:= (1+7)^2+91\times 7\times 2-9 && = ((9-2)\times((71-9)+(2^7)))-1\\
\mathbf{1330} &:= 1\times 7\times(2\times 91+72/9) && = (9-2)\times((71-9)+((2^7)\times 1))\\
\mathbf{1331} &:= -1+72+(9+1)\times 7\times 2\times 9 && = ((9+(2\times 71))\times 9)-(27+1)\\
\mathbf{1332} &:= (-1+72+9+1-7)\times 2\times 9 && = ((9+(2+7))\times 1)\times(((9^2)-7)\times 1)\\
\mathbf{1333} &:= -1+(7^2+9)\times(1-7+29) && = (9\times(2+(7\times(19+2))))-(7+1)\\
\mathbf{1334} &:= 1\times(7^2+9)\times(1-7+29) && = (9+(2\times 7))\times(((1-9)^2)-(7-1))\\
\mathbf{1335} &:= 1+(7^2+9)\times(1-7+29) && = ((9+2)\times(7\times 19))-((2^7)\times 1)\\
\mathbf{1336} &:= (1+7)\times((29-1)\times 7-29) && = ((9+2)\times(7\times 19))-((2^7)-1)\\
\mathbf{1337} &:= 1\times 7\times 2\times 91+72-9 && = (9\times(2^7))+((192-7)\times 1)\\
\mathbf{1338} &:= 1+7+2\times(9\times 17+2^9) && = ((9\times(2^7))+192)-(7-1)\\
\mathbf{1339} &:= 1\times 7+2\times(91\times 7+29) && = 9+((271-(9^2))\times(7\times 1))\\
\mathbf{1340} &:= 17+2\times 9\times(1+72)+9 && = ((((9^2)-(7\times 1))\times(9\times 2))+7)+1\\
\mathbf{1341} &:= (-1\times 7\times 2+91+72)\times 9 && = 9\times((2\times(7-1))+((9+(2^7))\times 1))\\
\mathbf{1342} &:= -1+7\times 2\times(91+7)-29 && = 9+((2\times((71\times 9)+27))+1)\\
\mathbf{1343} &:= -1\times 7+(29+1)\times(7-2)\times 9 && = 9+(2\times(((71\times 9)+27)+1))\\
\mathbf{1344} &:= (1\times 7-2+91)\times(7-2+9) && = (9/(2+7))\times(192\times(7\times 1))\\
\mathbf{1345} &:= 17\times(-2+9\times 1)\times 7+2^9 && = (9/(2+7))+(192\times(7\times 1))\\
\mathbf{1346} &:= 1+7^2+9\times(1+7)\times 2\times 9 && = (9\times((2\times 71)+9))-((2\times 7)-1)\\
\mathbf{1347} &:= -1+7+(-2+9\times 17-2)\times 9 && = (9+2)-((7-(192\times 7))+1)\\
\mathbf{1348} &:= 17+(2+9)^{-1-7+2+9} && = (9+2)+(((7\times 192)-7)\times 1)\\
\mathbf{1349} &:= (-1+72)\times(-9+17+2+9) && = (((9+2)+7)+(1^{92}))\times 71\\
\mathbf{1350} &:= -1+7\times(2^{9-1}-72+9) && = (9-(2\times 7))\times((1^9)-271)\\
\mathbf{1351} &:= 1\times 7\times(2^{9-1}-72+9) && = ((9^2)-7)-(1-((9\times 2)\times 71))\\
\mathbf{1352} &:= (1+7)\times(-2+9\times 17+2\times 9) && = (9-((2-7)\times 19))\times((2\times 7)-1)\\
\mathbf{1353} &:= (-1+72+9)\times 17+2-9 && = 9-((2\times(7+(1-92)))\times(7+1))\\
\mathbf{1354} &:= -1+7\times 2\times 91+72+9 && = (((9^2)+71)\times 9)-(2\times(7\times 1))
\end{aligned}$$

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$\mathbf{1355} := 1-7+2+(9\times 17-2)\times 9 = ((9-((2\times 7)-1))+9)\times 271$

$\mathbf{1356} := 1+72+91\times 7\times 2+9 = (((9\times 27)-19)+2)\times(7-1)$

$\mathbf{1357} := (17-2)\times 91-72/9 = ((9-(2-7))+(192\times 7))-1$

$\mathbf{1358} := -17+(2+9)\times(-1+7\times 2\times 9) = ((9-(2-7))+(192\times 7))\times 1$

$\mathbf{1359} := (1+7-29+172)\times 9 = 927+((19^2)+71)$

$\mathbf{1360} := (-1+72+9)\times(-1+7+2+9) = 9-(((2^7)\times((1-9)-2))-71)$

$\mathbf{1361} := (17-2)\times 91+7-2-9 = (9+2)+((7+(192\times 7))-1)$

$\mathbf{1362} := 1^7+2+(9\times 17-2)\times 9 = ((9+2)+7)+((192\times 7)\times 1)$

$\mathbf{1363} := 1^7\times(29-1)\times 7^2-9 = (((9-2)+(71\times 9))\times 2)+71$

$\mathbf{1364} := 1\times 7-2+(9\times 17-2)\times 9 = 9+(((2-7)+(1+9))\times 271)$

$\mathbf{1365} := (17-2)\times 91/7\times(-2+9) = 92-(7-(((1+9)\times(2^7))\times 1))$

$\mathbf{1366} := 1+7\times 2\times(91+7)+2-9 = (((9+(2^7))\times(1+9))+2)-(7-1)$

$\mathbf{1367} := (-1+72)\times 9-1+729 = (9\times((271+9)-(2^7)))-1$

$\mathbf{1368} := 1\times 72\times(9+1)+72\times 9 = (9\times((271+9)-(2^7)))\times 1$

$\mathbf{1369} := 17\times 2\times(9-1)\times(7-2)+9 = (9\times((271+9)-(2^7)))+1$

$\mathbf{1370} := 1+(7^2-9)\times 17\times 2+9 = ((9\times((2^7)+(1+9)))+(2^7))\times 1$

$\mathbf{1371} := -1+7^2\times(-9+1+7+29) = (((9+(2+7))-1)\times(9^2))-(7-1)$

$\mathbf{1372} := 1\times 7^2\times(-9+1+7+29) = (9+(2\times(719-2)))-71$

$\mathbf{1373} := 1+7^2\times(-9+1+7+29) = ((9-(2-7))\times(1+92))+71$

$\mathbf{1374} := (1-7)\times 29+172\times 9 = 9+(((2\times 719)-2)-71)$

$\mathbf{1375} := (-1+7+(-2+9)\times 17)\times(2+9) = (9^2)-(((7-192)\times 7)+1)$

$\mathbf{1376} := 172\times(9-1^{729}) = ((92+7)-1)+(9\times(2\times 71))$

$\mathbf{1377} := 1\times 729\times 1+72\times 9 = ((92+7)\times 1)+(9\times(2\times 71))$

$\mathbf{1378} := 1\times 729+1+72\times 9 = (((9+(2^7))\times(1+9))+2)+(7-1)$

$\mathbf{1379} := 1+729+1+72\times 9 = ((92\times 7)-1)+(92\times(7+1))$

$\mathbf{1380} := 1+7\times 2\times(91+7)-2+9 = ((92\times 7)\times 1)+(92\times(7+1))$

$\mathbf{1381} := 172\times(9-1)+7\times 2-9 = ((9-(2-719))\times 2)-71$

$\mathbf{1382} := -1^7+29\times(-1+7^2)-9 = (9+((2\times 7)\times(1+92)))+71$

$\mathbf{1383} := -1+7+(2\times 9+1)\times 72+9 = (((92\times(7+1))-9)\times 2)-71$

$\mathbf{1384} := 1\times 7+(2\times 9+1)\times 72+9 = ((9\times(27+(1-9)))+2)\times(7+1)$

$\mathbf{1385} := -1+(7+2)\times(91+72-9) = ((9+(((2+7)+1)\times 9))\times(2\times 7))-1$

$\mathbf{1386} := (1+7-29)\times(1-7)\times(2+9) = ((9+2)\times 7)\times((1+(9+2))+(7-1))$

$\mathbf{1387} := 17\times(-2+91)-7\times 2\times 9 = ((9+(2\times 71))\times 9)+(27+1)$

$\mathbf{1388} := 1\times(7+2)\times 9\times 17+2+9 = (9-(((2-7)-192)\times 7))\times 1$

$\mathbf{1389} := 1+(72+9)\times 17+2+9 = 9-((((2-7)-192)\times 7)-1)$

$\mathbf{1390} := -1+7\times 2\times(91+7+2)-9 = (((9+2)\times 7)\times 19)-(2+71)$

$\mathbf{1391} := 1+7\times 2\times(91+7)+2\times 9 = 9+(2\times((719-27)-1))$

$\mathbf{1392} := (-1-7+2\times 91)\times 72/9 = ((92+71)+(9+2))\times(7+1)$

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$\mathbf{1393} := 1\times 7\times(2\times 9+172+9)$ $= (9+(271-(9^2)))\times(7\times 1)$

$\mathbf{1394} := -1\times 7+29\times(-1+7^2)+9$ $= 9+(((2+71)\times(9\times 2))+71)$

$\mathbf{1395} := (-1+7)\times 2\times 9\times(-1+7\times 2)-9$ $= 9\times((2+71)+(9+(2+71)))$

$\mathbf{1396} := (1+72)\times(91-72)+9$ $= ((9\times 27)\times 1)+((9\times(2^7))+1)$

$\mathbf{1397} := (1\times 7\times 2\times 9+1^7)\times(2+9)$ $= (9+2)\times(7+(((1+9)\times 2)\times(7-1)))$

$\mathbf{1398} := (1+7)\times 2\times 91-7^2-9$ $= (((9-2)+71)\times(9\times 2))-(7-1)$

$\mathbf{1399} := 172\times(9-1)+7\times 2+9$ $= (92\times((7\times 1)+9))-(2+71)$

$\mathbf{1400} := 1\times 7-2+(9\times 17+2)\times 9$ $= (((9-2)\times 7)+(1^9))\times(27+1)$

$\mathbf{1401} := 172\times(9-1)+7+2\times 9$ $= (9-2)+(7+(19\times(2+71)))$

$\mathbf{1402} := 1+7\times 2\times(91+7)+29$ $= (9-27)+(((1+9)\times 2)\times 71)$

$\mathbf{1403} := 17+(2+9\times 1)\times 7\times 2\times 9$ $= (((9\times 2)\times 7)-1)+((9\times 2)\times 71)$

$\mathbf{1404} := (17^2-9-1)\times(7-2)+9$ $= (9+2)+(7\times((192+7)\times 1))$

$\mathbf{1405} := 172\times(-9+17)+29$ $= ((9\times 2)\times 71)+(((9\times 2)\times 7)+1)$

$\mathbf{1406} := 1-7+29\times 1\times 7^2-9$ $= (9\times(2\times 7))+(((1+9)\times(2^7))\times 1)$

$\mathbf{1407} := -1+(72+(9-1)\times 7)\times(2+9)$ $= (((9+(2+7))+1)\times((9^2)-7))+1$

$\mathbf{1408} := 1\times(72+(9-1)\times 7)\times(2+9)$ $= (92+(7\times(1+(9+2))))\times(7+1)$

$\mathbf{1409} := 1+(72+(9-1)\times 7)\times(2+9)$ $= (((9^2)-7)\times((1+9)\times 2))-71$

$\mathbf{1410} := 1+7\times 2\times(91+7+2)+9$ $= (((9-2)+71)\times(9\times 2))+(7-1)$

$\mathbf{1411} := 1\times 7+2\times 9\times(1+7\times(2+9))$ $= (9\times(2\times 71))-(9-(2\times 71))$

$\mathbf{1412} := 172\times(9-1)+7+29$ $= (927-1)+((9^2)\times(7-1))$

$\mathbf{1413} := (-1+729-17)\times 2-9$ $= 9\times((2-(7+1))+(92+71))$

$\mathbf{1414} := (-1+7\times 29+1)\times 7+2-9$ $= (9\times(2\times 71))+((9+(2^7))-1)$

$\mathbf{1415} := -1+7\times(29+172)+9$ $= 9+((((2+7)+192)\times 7)-1)$

$\mathbf{1416} := (1+7)\times 2\times 91-7^2+9$ $= 9+((((2+7)+192)\times 7)\times 1)$

$\mathbf{1417} := (-1+7\times 2)\times(91+7+2+9)$ $= (((9^2)-7)+(192\times 7))-1$

$\mathbf{1418} := -1\times 7^2+(91+72)\times 9$ $= (9^2)+(((7\times 192)-7)\times 1)$

$\mathbf{1419} := -1+7+(2+9\times 17+2)\times 9$ $= (9^2)-((7-(192\times 7))-1)$

$\mathbf{1420} := (-1+72)\times(-9\times 1^7+29)$ $= 9+(((2\times 719)-27)\times 1)$

$\mathbf{1421} := (17-2-9+1)\times 7\times 29$ $= 9+(((2\times 719)-27)+1)$

$\mathbf{1422} := 1+7\times 29\times(-1+72/9)$ $= (92\times(7+(1+9)))-(2\times 71)$

$\mathbf{1423} := 1729-17\times 2\times 9$ $= (9+27)+(19\times(2+71))$

$\mathbf{1424} := (1+7)\times((29-1)\times 7-2\times 9)$ $= ((9+2)\times 71)+((92\times 7)-1)$

$\mathbf{1425} := 1-7+2+917+2^9$ $= (((9+(2+7))+1)\times(((9^2)-7)+1)$

$\mathbf{1426} := -1^7-2+917+2^9$ $= ((9+2)+(7\times 192))+71$

$\mathbf{1427} := -1^7\times 2+917+2^9$ $= (9\times(2\times(71+9)))-((2\times 7)-1)$

$\mathbf{1428} := (17-2)\times 91+72-9$ $= (92+(7\times 192))-(7+1)$

$\mathbf{1429} := 1^{72}\times 917+2^9$ $= ((92+(7\times 192))-7)\times 1$

$\mathbf{1430} := -1-7+2\times(-9-1+729)$ $= ((92+(7\times 192))-7)+1$

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$\mathbf{1431} := (-1+729-17)\times 2+9 = (9+(2\times 719))-(2\times(7+1))$

$\mathbf{1432} := (-1+7\times 29+1)\times 7+2+9 = (9+271)+(9\times 2^{7\times 1})$

$\mathbf{1433} := 1+7\times 29\times 1\times 7+2+9 = ((((9^2)-7)\times 19)+27)\times 1$

$\mathbf{1434} := 1-7+2\times(-9\times 1+729) = ((((9^2)-7)\times 19)+27)+1$

$\mathbf{1435} := 1+7-2+917+2^9 = (9+(2\times 719))-(2\times(7-1))$

$\mathbf{1436} := 1+7+(-2+9)\times(1+7\times 29) = (9\times(2\times(71+9)))+(2-(7-1))$

$\mathbf{1437} := 1\times 7+29\times 1\times 7^2+9 = 9-(((2\times 7)\times(1-(9\times 2)))\times(7-1))$

$\mathbf{1438} := -1+7\times 29\times 1\times 7+2\times 9 = 9+((2\times 719)-(2+(7\times 1)))$

$\mathbf{1439} := 1\times 7\times 29\times 1\times 7+2\times 9 = 927+((19\times 27)-1)$

$\mathbf{1440} := 1^7\times 2\times(9-1+72)\times 9 = (9+27)\times((1-9)\times(2-(7\times 1)))$

$\mathbf{1441} := 1^7+2\times(9-1+72)\times 9 = 92+((71\times(9\times 2))+71)$

$\mathbf{1442} := 1^7\times 2\times(-9+1+729) = ((92+7)+(192\times 7))-1$

$\mathbf{1443} := 1^7+2\times(-9+1+729) = ((92+7)+(192\times 7))\times 1$

$\mathbf{1444} := 1+7\times 2+917+2^9 = ((92+7)+(192\times 7))+1$

$\mathbf{1445} := 17\times(2+9\times(1+7)+2+9) = (92\times((7\times 1)+9))-(27\times 1)$

$\mathbf{1446} := 1^7\times 291\times(7-2)-9 = (((9\times 27)\times(1^9))-2)\times(7-1)$

$\mathbf{1447} := -1+72/9\times(172+9) = (((92\times(7+1))-9)\times 2)-(7\times 1)$

$\mathbf{1448} := 1\times 72/9\times(172+9) = ((9\times 2)\times(71+9))+(2+(7-1))$

$\mathbf{1449} := 1729-17^2+9 = 9\times((((27-1)\times 9)-2)-71)$

$\mathbf{1450} := 17\times(-2+91)-72+9 = (9\times(((2+7)\times 19)-2))-71$

$\mathbf{1451} := -(1+7)\times 2+9\times(172-9) = (9-2)+((719\times 2)+(7-1))$

$\mathbf{1452} := -1-7\times 2+(91+72)\times 9 = (9-(2-(719\times 2)))+(7\times 1)$

$\mathbf{1453} := 1\times 7+291\times(7-2)-9 = 9+((2\times 719)-((2-7)-1))$

$\mathbf{1454} := 1-7\times 2+(91+72)\times 9 = (((92+(71\times 9))\times 2)-7)-1$

$\mathbf{1455} := 17+2\times(-9-1+729) = (9+(2+(719\times 2)))+(7-1)$

$\mathbf{1456} := (1+7)\times(2+(9+1)\times(7+2+9)) = (9+(2\times 719))+(2+(7\times 1))$

$\mathbf{1457} := 1\times 729-1+729 = (((9+2)\times(7\times 19))+2)-(7+1)$

$\mathbf{1458} := (1\times 7+2)\times 9\times 1\times(7+2+9) = 9+(((2+719)\times 2)+(7\times 1))$

$\mathbf{1459} := 1\times 729+1+729 = 927+(19\times(27+1))$

$\mathbf{1460} := (1+7+2)\times(9\times 17+2-9) = (9+(((2\times 7)+1)\times 92))+71$

$\mathbf{1461} := (1+72)\times 91/7+2^9 = ((9^2)-7)+(19\times(2+71))$

$\mathbf{1462} := -1\times 7+2+(91+72)\times 9 = (((92\times((7\times 1)+9))-2)-7)-1$

$\mathbf{1463} := 17+291\times(7-2)-9 = (92\times((7\times 1)+9))-(2+(7\times 1))$

$\mathbf{1464} := 17\times(-2+91)+7\times(2-9) = ((9^{27\times 1/9})\times 2)+(7-1)$

$\mathbf{1465} := 1^7\times(2^{9+1}+7^2\times 9) = 9+(2\times((7+19)\times(27+1)))$

$\mathbf{1466} := 172\times 9-1-72-9 = (9-((2-(7+1))\times(9\times 27)))-1$

$\mathbf{1467} := 1^{72}\times(91+72)\times 9 = ((9+2)\times(7\times 19))-(2-(7-1))$

$\mathbf{1468} := -1^7+2+(91+72)\times 9 = (9\times((2\times 71)-9))+271$

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1469 $:= -1+7^2\times(9-1-7+29)$ $= (9\times(2\times7))+((192\times7)-1)$

1470 $:= 172\times9-1-7\times(2+9)$ $= (9\times(2\times7))+(192\times(7\times1))$

1471 $:= (1+729+1^7)\times2+9$ $= (((9+2)\times(7\times19))+2)+(7-1)$

1472 $:= 1\times7-2+(91+72)\times9$ $= 92\times(((7-19)+27)+1)$

1473 $:= 1+7-2+(91+72)\times9$ $= (((9+2)\times(7\times19))+2)+(7+1)$

1474 $:= 1^7\times2\times(9-1+729)$ $= (9^2)+((7+192)\times(7\times1))$

1475 $:= -1^7+(-2+91-7)\times2\times9$ $= ((9+2)\times(7\times19))+(2\times(7-1))$

1476 $:= 1^7\times2\times(9+1+72)\times9$ $= (9\times2)+((((7-1)\times9)\times27)\times1)$

1477 $:= 1\times7\times(-2+9+1+7\times29)$ $= (9\times2)+((((7-1)\times9)\times27)+1)$

1478 $:= 1+7\times2\times91+7\times29$ $= 92+(7\times(192+(7-1)))$

1479 $:= (-1+7)\times2+9\times(172-9)$ $= ((9+(2+7))-1)\times((9^2)+(7-1))$

1480 $:= -1+7\times2+(91+72)\times9$ $= (927+1)+(92\times(7-1))$

1481 $:= 17+291\times(7-2)+9$ $= (92\times((7\times1)+9))+(2+(7\times1))$

1482 $:= (1-7)\times((2-9)\times17\times2-9)$ $= ((9+(2+7))\times(1+(9^2)))+(7-1)$

1483 $:= (1+7)\times2+9\times(172-9)$ $= ((9+(2+7))\times(1+(9^2)))+(7\times1)$

1484 $:= 172\times9-1-72+9$ $= 92+((7\times(192+7))-1)$

1485 $:= -1\times72+9\times172+9$ $= 92+(7\times(192+(7\times1)))$

1486 $:= 1-72+9\times172+9$ $= ((9^2)\times(7-(1-9)))+271$

1487 $:= 17\times(2+9)\times(-1+7+2)-9$ $= (9\times((2\times71)+9))+((2^7)\times1)$

1488 $:= (-1+7+2\times9)\times(-1+72-9)$ $= (927-((1-(9^2))\times7))+1$

1489 $:= (1+7)\times(2+9)\times17+2-9$ $= (((9^2)+7)\times(19-2))-(7\times1)$

1490 $:= 17\times(-2+91)-7\times2-9$ $= (9+(2\times(7\times(1+9))))\times((2+7)+1)$

1491 $:= -1+(7^2+91)\times7+2^9$ $= (9+(2-(7+1)))\times((9-2)\times71)$

1492 $:= 1\times(7^2+91)\times7+2^9$ $= 92+(7\times((192+7)+1))$

1493 $:= 17+2\times9\times(1+72+9)$ $= ((9\times((2+71)+92))+7)+1$

1494 $:= (1+72+9+1)\times(7+2+9)$ $= ((92+71)\times9)+(27\times1)$

1495 $:= 1^7+(2\times(91-7)-2)\times9$ $= (9+(2\times7))\times((1-9)+(2+71))$

1496 $:= 17\times(291-7\times29)$ $= (9^2)+((7\times192)+71)$

1497 $:= 1729-(1+7)\times29$ $= (((9^2)+71)\times9)+((2^7)+1)$

1498 $:= 1\times7\times(-2\times9+(1+7)\times29)$ $= 9-(2-(71\times(92-71)))$

1499 $:= 1+7\times(-2\times9+(1+7)\times29)$ $= (92\times((7\times1)+9))+(27\times1)$

1500 $:= 17\times(2+91)-72-9$ $= ((9\times(2\times7))-1)\times((9\times2)-(7-1))$

1501 $:= (1+7+2)\times9\times17-29$ $= 927+(((1+(9^2))\times7)\times1)$

1502 $:= -17-29+172\times9$ $= (9+2)+(71\times(92-71))$

1503 $:= (-1+7)^2+9\times(172-9)$ $= (927\times1)+(9\times2^{7-1})$

1504 $:= (1+7)\times(-2+9+172+9)$ $= (9\times(((2^7)\times1)+9))+271$

1505 $:= 172\times9-17\times2-9$ $= (92-7)+((1+9)\times(2\times71))$

1506 $:= (1^7+2)\times(9+17\times29)$ $= (9\times(2^7))+((19^2)-(7\times1))$

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$\mathbf{1507} := 172\times 9-1-7^2+9 = 92+((7\times 192)+71)$

$\mathbf{1508} := -1\times 7^2+9+172\times 9 = (((9\times(2\times 7))-1)-9)\times((2\times 7)-1)$

$\mathbf{1509} := -1^7-2+(91-7)\times 2\times 9 = (9+2)+(7+((19+2)\times 71))$

$\mathbf{1510} := 1^7\times(-2+(91-7)\times 2\times 9) = ((9\times 2)-(7+1))\times(9+(2\times 71))$

$\mathbf{1511} := 1^7-2+(91-7)\times 2\times 9 = ((((9\times(2+7))-1)\times 9)\times 2)+71$

$\mathbf{1512} := (1\times 7+2\times 91)\times 72/9 = ((9\times(2+7))\times 19)-(27\times 1)$

$\mathbf{1513} := 17\times(-2+91)-7-2+9 = ((9+2)+(7-1))\times((9\times 2)+71)$

$\mathbf{1514} := (1+7)\times 2\times 91+7^2+9 = (9+(2\times(719-2)))+71$

$\mathbf{1515} := 1\times 7+2\times(9+17)\times 29 = ((9\times(((2\times 7)-(1^9))^2))-7)+1$

$\mathbf{1516} := 1\times 7^2+(91+72)\times 9 = ((9\times 2)+7)+((19+2)\times 71)$

$\mathbf{1517} := 1+7^2+(-9+172)\times 9 = (((9\times 2)-7)\times((1+9)+(2^7)))-1$

$\mathbf{1518} := 17\times(2+91)-72+9 = (9-27)+(192\times(7+1))$

$\mathbf{1519} := (1+7+2)\times 9\times 17-2-9 = ((9\times 2)+(7+192))\times(7\times 1)$

$\mathbf{1520} := 172\times 9-17-2-9 = (9+(2\times 719))+(2+71)$

$\mathbf{1521} := (-1\times 7+29-1)\times 72+9 = (((9\times 2)\times 71)+(9\times 27))\times 1$

$\mathbf{1522} := 172\times 9-1-7-2\times 9 = (92+(719\times 2))-(7+1)$

$\mathbf{1523} := -17\times 2+9+172\times 9 = ((9-(2-719))\times 2)+71$

$\mathbf{1524} := -17+2+9\times(17+2)\times 9 = 92+((719\times 2)-(7-1))$

$\mathbf{1525} := 1729-1-7\times 29 = (((92\times(7+1))-9)\times 2)+71$

$\mathbf{1526} := 1\times 7\times 2\times(91+7+2+9) = ((((9+(2^7))+1)\times(9+2))+7)+1$

$\mathbf{1527} := 1+7\times 2\times(91+7+2+9) = (9\times 2)+((719\times 2)+71)$

$\mathbf{1528} := 1^7+2^9\times(1^7+2)-9 = ((9\times(((2\times 7)-(1^9))^2))+7)\times 1$

$\mathbf{1529} := -1+(7-2)\times(9+1+7)\times 2\times 9 = ((9\times 2)-7)\times(((1+9)+(2^7))+1)$

$\mathbf{1530} := 17\times(2+9-1^{72})\times 9 = ((92+71)+92)\times(7-1)$

$\mathbf{1531} := 172\times 9+1-7-2-9 = (((9+2)+719)\times 2)+71$

$\mathbf{1532} := 1-7+2+(9+1-7)\times 2^9 = ((((9+2)\times 7)\times 19)-2)+71$

$\mathbf{1533} := (1+72)\times(9-17+29) = (((9\times 2)-(7-1))+9)\times(2+71)$

$\mathbf{1534} := (-1+7\times 2)\times(-9+1+7\times 2\times 9) = (9+((2^7)-19))\times((2\times 7)-1)$

$\mathbf{1535} := 1-7+2-9+172\times 9 = (((92-71)-9)\times(2^7))-1$

$\mathbf{1536} := 172\times 9+17-29 = ((92+7)+(1+92))\times(7+1)$

$\mathbf{1537} := -1^7\times 2+9\times(17+2)\times 9 = ((92\times((7+1)+9))-27)\times 1$

$\mathbf{1538} := 172\times 9-17-2+9 = (92+(719\times 2))+(7+1)$

$\mathbf{1539} := 172\times 9-1-72/9 = (9^2)\times(7+(((1+9)\times 2)-(7+1)))$

$\mathbf{1540} := (17+291)\times(7\times 2-9) = (9+2)\times(((7\times(19+2))-7)\times 1)$

$\mathbf{1541} := (1+7+2)\times 9\times 17+2+9 = ((((92-7)+1)\times 9)\times 2)-(7\times 1)$

$\mathbf{1542} := (-1-7+29)\times(1+72)+9 = 9+((27+192)\times(7\times 1))$

$\mathbf{1543} := (-1+7)\times 291-7\times 29 = ((9\times(2\times 71))+9)+2^{7+1}$

$\mathbf{1544} := -1^7+2^9\times(-1+7)/2+9 = 92+((7-1)\times((9\times 27)-1))$

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$\mathbf{1545} := 1+7-2-9+172\times 9 = (92\times((7\times 1)+9))+(2+71)$

$\mathbf{1546} := 17\times 2+(91-7)\times 2\times 9 = (9\times(2\times 7))+(((1+9)\times 2)\times 71)$

$\mathbf{1547} := (1-7+2-9)\times 17\times(2-9) = (927-1)-(9\times(2-71))$

$\mathbf{1548} := 1729-172-9 = ((92+71)+9)\times(2+(7\times 1))$

$\mathbf{1549} := 1+7+2+9\times 172-9 = 927+(1-(9\times(2-71)))$

$\mathbf{1550} := (-1+72-9)\times(17\times 2-9) = 92+(((7-1)\times 9)\times(27\times 1))$

$\mathbf{1551} := (1+7\times 2\times(9+1))\times(-7+2\times 9) = ((92-7)\times 19)-2^{7-1}$

$\mathbf{1552} := 1\times 7\times(2^9-17^2)-9 = (9+((2\times(7+1))\times 92))+71$

$\mathbf{1553} := 172\times 9+1-7+2+9 = ((92-71)\times((9^2)-7))-1$

$\mathbf{1554} := 17-2+9\times(17+2)\times 9 = (9-2)\times((71+9)+(2\times 71))$

$\mathbf{1555} := 1729+(1-7)\times 29 = ((92-71)\times((9^2)-7))+1$

$\mathbf{1556} := 172\times 9-1^{72}+9 = ((9+2)\times((7\times 19)+2))+71$

$\mathbf{1557} := -1\times 72+9\times(172+9) = 9\times(((271-92)-7)+1)$

$\mathbf{1558} := 172\times 9-1-7+2\times 9 = (9+271)+((9\times 2)\times 71)$

$\mathbf{1559} := -1\times 7+2\times 9+172\times 9 = ((9\times 2)\times((7-1)+(9^2)))-(7\times 1)$

$\mathbf{1560} := 1-7+2\times 9+172\times 9 = (((((9^2)+7)-1)\times 9)\times 2)-(7-1)$

$\mathbf{1561} := 1\times 7^2+(91-7)\times 2\times 9 = (9\times 2)+(7+(192\times(7+1)))$

$\mathbf{1562} := 17\times(-2+91)+7\times(-2+9) = ((9+2)\times 71)+((9+2)\times 71)$

$\mathbf{1563} := 1+7-2+9\times 172+9 = (927-((1-92)\times 7))-1$

$\mathbf{1564} := (-1+7^2\times(9-1))\times(-7+2+9) = (927-((1-92)\times 7))\times 1$

$\mathbf{1565} := 172\times 9-1+7+2+9 = (927-((1-92)\times 7))+1$

$\mathbf{1566} := 1729-172+9 = ((9\times(2+7))\times 19)+(27\times 1)$

$\mathbf{1567} := 1+7+2+9+172\times 9 = 927+((1+9)\times 2^{7-1})$

$\mathbf{1568} := 1\times 7\times 2\times(9-1)\times(7-2+9) = ((9+2)\times 7)+((19+2)\times 71)$

$\mathbf{1569} := -1-7+29+172\times 9 = 9-((27-1)\times((9+2)-71))$

$\mathbf{1570} := -1\times 7+29+172\times 9 = (92\times 7)-(1-(927\times 1))$

$\mathbf{1571} := 1\times 7-2+9\times(-1+7)\times 29 = 9-(((2-7)-(19-2))\times 71)$

$\mathbf{1572} := 172\times 9-1+7+2\times 9 = 9+(27+(192\times(7+1)))$

$\mathbf{1573} := 1\times 7+2\times 9+172\times 9 = (92\times 7)+(1+(927+1))$

$\mathbf{1574} := 172\times 9+1+7+2\times 9 = (((9^2)\times(7+1))+927)-1$

$\mathbf{1575} := (17-2)\times(91+7-2+9) = (((9^2)\times(7+1))+927)\times 1$

$\mathbf{1576} := 17+2+9+172\times 9 = (((9^2)\times(7+1))+927)+1$

$\mathbf{1577} := 1^7\times(29+172\times 9) = (927+((1+92)\times 7))-1$

$\mathbf{1578} := (17+2)\times(91-7)-2\times 9 = (927+((1+92)\times 7))\times 1$

$\mathbf{1579} := -1-7^2+9\times(172+9) = (927+((1+92)\times 7))+1$

$\mathbf{1580} := -1\times 7^2+9\times(172+9) = (9\times 2)+(71\times(9+((2\times 7)-1)))$

$\mathbf{1581} := 1+7\times 2+9\times(-1+7)\times 29 = ((((9\times 27)-19)+2)\times 7)-1$

$\mathbf{1582} := (1+7\times 2\times(9-1))\times(7-2+9) = ((((9\times 27)-19)+2)\times 7)\times 1$

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$\mathbf{1583} := -1+7+29+172\times 9 = 92-((71-92)\times 71)$

$\mathbf{1584} := 1\times 7+29+172\times 9 = (9\times 2)\times(((7-1)+9)+(2+71))$

$\mathbf{1585} := 172\times 9+1+7+29 = (9\times(2+71))+(927+1)$

$\mathbf{1586} := 1+7^2+(9+1-7)\times 2^9 = (9\times 27)+((192\times 7)-1)$

$\mathbf{1587} := 172\times 9-1+7^2-9 = (9-(2\times((7\times 1)+9)))\times(2-71)$

$\mathbf{1588} := 1\times 7^2+9\times 172-9 = ((9\times 27)+(192\times 7))+1$

$\mathbf{1589} := 17\times(2+91)+72/9 = (((9\times((2\times 7)+1))+92)\times 7)\times 1$

$\mathbf{1590} := -17\times 2+(9-1)\times 7\times 29 = (9^2)+((719\times 2)+71)$

$\mathbf{1591} := 17\times 2+9+172\times 9 = (92\times((7+1)+9))+(27\times 1)$

$\mathbf{1592} := -1+(-7+29\times 1)\times 72+9 = ((9^2)\times 7)-(((1-9)\times(2^7))-1)$

$\mathbf{1593} := (-1\times 7+29\times 1)\times 72+9 = 9+((2\times((7\times 1)+92))\times(7+1))$

$\mathbf{1594} := ((172\times 9)+17)+29 = (9\times(2\times(71+(9\times 2))))-(7+1)$

$\mathbf{1595} := (17\times(2+91))+7-2+9 = (((9+27)+192)\times 7)-1$

$\mathbf{1596} := 172\times 9-1+7\times(-2+9) = (9+(2\times(71-9)))\times(2\times(7-1))$

$\mathbf{1597} := (1+7)\times 2\times(91+7)+29 = (((9+27)+192)\times 7)+1$

$\mathbf{1598} := 17\times(2\times 9-1+7\times(2+9)) = (9+((2+(((7-1)+9)^2))\times 7))\times 1$

$\mathbf{1599} := 17\times(2+91)+7+2+9 = ((92-7)\times 19)-(2\times(7+1))$

$\mathbf{1600} := (1+7^2)\times(9\times 1+7\times 2+9) = ((92-7)\times 19)-((2\times 7)+1)$

$\mathbf{1601} := -1^7+(-2+91)\times(7+2+9) = 92+((719\times 2)+71)$

$\mathbf{1602} := (-1^7-2+9+172)\times 9 = 9\times((((2^7)-19)-2)+71)$

$\mathbf{1603} := (1+7)^2+9\times 172-9 = ((92-7)\times 19)-(2\times(7-1))$

$\mathbf{1604} := -17\times 2+91\times(7+2+9) = (9\times(271-92))-(7\times 1)$

$\mathbf{1605} := -1+7\times 29\times(1+7)-2\times 9 = (((9^2)+7)+19)\times((2\times 7)+1)$

$\mathbf{1606} := 1\times 7^2+9+172\times 9 = (((92-7)\times 19)-(2+7))\times 1$

$\mathbf{1607} := -17+29\times(1+7)\times(-2+9) = ((92-7)\times 19)-(2+(7-1))$

$\mathbf{1608} := 1\times 72+(9+1-7)\times 2^9 = (((9\times(2\times 7))-1)+9)\times(2\times(7-1))$

$\mathbf{1609} := -17+2+(9-1)\times 7\times 29 = (((92-7)\times 19)+2)-(7+1)$

$\mathbf{1610} := 17\times(2-9)+1729 = ((92-7)\times 19)+((2-7)\times 1)$

$\mathbf{1611} := 1-7\times 2+(9-1)\times 7\times 29 = 9\times((2\times 71)+(9+(27+1)))$

$\mathbf{1612} := 172\times 9+1+72-9 = (9\times(2^{7+1}-((9+2)\times 7)))+1$

$\mathbf{1613} := -1\times 7+2\times 9\times(1+7+2)\times 9 = ((9\times((2+7)+1))\times(9\times 2))-(7\times 1)$

$\mathbf{1614} := (-1+7)\times(291+7-29) = ((9+(271-9))-2)\times(7-1)$

$\mathbf{1615} := 17\times(2\times(9+17)\times 2-9) = ((9+(2+7))+1)\times(92-(7\times 1))$

$\mathbf{1616} := -1-7+(29-1)\times(7^2+9) = ((92+719)\times 2)-(7-1)$

$\mathbf{1617} := (-1+7\times 2+9-1)\times 7\times(2+9) = (92-71)\times((9+2)\times(7\times 1))$

$\mathbf{1618} := 1+7\times 29\times(1+7)+2-9 = (9\times(271-92))+(7\times 1)$

$\mathbf{1619} := 17+(-2+91)\times(7+2+9) = ((92-7)\times 19)-((2-7)+1)$

$\mathbf{1620} := (17+(2\times 9+1))\times(7-2)\times 9 = (9+27)\times((19+27)-1)$

$$\mathbf{1621} := 1-7-2+9\times(172+9) = 9+((2\times(71-9))\times((2\times 7)-1))$$
$$\mathbf{1622} := -1\times 7+2\times 91\times(7+2)-9 = (((92-7)\times(1+(9\times 2)))+7)\times 1$$
$$\mathbf{1623} := -1-7+2+9\times(172+9) = ((92-7)\times 19)+(2+(7-1))$$
$$\mathbf{1624} := 172\times 9-1+7\times(2+9) = ((((9-2)\times 7)\times 1)+9)\times(27+1)$$
$$\mathbf{1625} := -(1+7)/2+(9+172)\times 9 = (((92-7)\times 19)+2)+(7+1)$$
$$\mathbf{1626} := 1^7\times 2+(9-1)\times 7\times 29 = (((9\times 2)+7)-19)\times 271$$
$$\mathbf{1627} := -1^7\times 2+(9+172)\times 9 = ((92-7)\times 19)+(2\times(7-1))$$
$$\mathbf{1628} := 172\times 9-1+72+9 = ((92-7)\times 19)+((2\times 7)-1)$$
$$\mathbf{1629} := 1^{72}\times 9\times(172+9) = ((9^2)\times(7-1))+(9\times((2^7)-1))$$
$$\mathbf{1630} := 1^{72}+9\times(172+9) = ((92-71)\times(9^2))-71$$
$$\mathbf{1631} := 1\times 7\times(2\times(9-1)\times 7\times 2+9) = ((92-7)\times 19)+(2\times(7+1))$$
$$\mathbf{1632} := 1\times 72/9\times(1+7\times 29) = (((9\times 27)+((1-9)-2))\times 7)+1$$
$$\mathbf{1633} := (1+7)/2+(9+172)\times 9 = 9+((((27-1)\times 9)-2)\times(7\times 1))$$
$$\mathbf{1634} := -1\times 7^2+9\times 17\times(2+9) = (((9+2)+7)+1)\times((92-7)+1)$$
$$\mathbf{1635} := (-1+7)\times(-2\times 9+17^2)+9 = (92+7)+(192\times(7+1))$$
$$\mathbf{1636} := 1+7\times 29\times(1+7)+2+9 = (((9+(2^7))\times((1+9)+2))-7)-1$$
$$\mathbf{1637} := -1+7+2+9\times(172+9) = ((9+(2^7))\times((1+9)+2))-(7\times 1)$$
$$\mathbf{1638} := (1\times 72-9)\times(1+7+2\times 9) = (9-2)\times(71+(92+71))$$
$$\mathbf{1639} := 172+(91+72)\times 9 = (9+2)\times(((71+9)-2)+71)$$
$$\mathbf{1640} := 1^7\times 2\times(91+729) = (9\times((2^7)-1))+((9-2)\times 71)$$
$$\mathbf{1641} := 1^7+2\times(91+729) = ((92-7)\times 19)+(27-1)$$
$$\mathbf{1642} := ((1+7)\times 29+1)\times 7+2+9 = ((92-7)\times 19)+(27\times 1)$$
$$\mathbf{1643} := 17\times(-2+91+7)+2+9 = (9^2)+(71\times(9+((2\times 7)-1)))$$
$$\mathbf{1644} := (-1+7)\times(2^{9-1}+7+2+9) = (9+(2^7))\times((1+(9\times 2))-(7\times 1))$$
$$\mathbf{1645} := -1-7+29\times(-1+7^2+9) = (((9\times 27)-(1+(9-2)))\times 7)\times 1$$
$$\mathbf{1646} := (-1+72+91)\times 7+2^9 = (((9\times 27)-(1+(9-2)))\times 7)+1$$
$$\mathbf{1647} := (1+(7-2+9-1)\times 7\times 2)\times 9 = 9-((2\times 7)\times(1+(9-((2^7)-1))))$$
$$\mathbf{1648} := -1\times 72-9+1729 = ((9\times(2^7))-1)+((9-2)\times 71)$$
$$\mathbf{1649} := 1729+1-72-9 = (((9-2)\times 71)+(9\times(2^7)))\times 1$$
$$\mathbf{1650} := (1+7^2)\times(9-1+7+2\times 9) = ((((9\times 2)+7)\times 1)\times(9+2))\times(7-1)$$
$$\mathbf{1651} := 1729-1-7\times(2+9) = ((9+((2^7)-19))\times(2\times 7))-1$$
$$\mathbf{1652} := (17+2+9)\times(1+7^2+9) = ((9+((2^7)-19))\times(2\times 7))\times 1$$
$$\mathbf{1653} := 1729+1-7\times(2+9) = ((9+((2^7)-19))\times(2\times 7))+1$$
$$\mathbf{1654} := -1\times 7+(-2+9\times 17)\times(2+9) = (9+((2\times(7-1))\times(9+(2^7))))+1$$
$$\mathbf{1655} := -17+2^{9+1}+72\times 9 = 927-((1-92)\times(7+1))$$
$$\mathbf{1656} := ((1-7)^2+9+1)\times(7+29) = 92\times((71\times(9\times 2))/71)$$
$$\mathbf{1657} := 17+2\times(91+729) = (9\times((2^7)+((1-9)^2)))-71$$
$$\mathbf{1658} := 17\times 2+(9-1)\times 7\times 29 = ((9-2)\times 71)+(9\times((2^7)+1))$$

$$\mathbf{1659} := (-1+7\times 2\times(9+1+7))\times(-2+9) = ((9+(2^7))+((1+9)^2))\times(7\times 1)$$
$$\mathbf{1660} := -1^7+(-2+9\times 17)\times(2+9) = (92\times 7)-((1-9)\times((2^7)-1))$$
$$\mathbf{1661} := 1^7\times(-2+9\times 17)\times(2+9) = 9+((2\times 7)\times(((19-2)\times 7)-1))$$
$$\mathbf{1662} := (-1+7)\times(291-7+2-9) = 927-(1-(92\times(7+1)))$$
$$\mathbf{1663} := 1729+((1-7)\times(2+9)) = ((((9-2)+7)-(1^9))\times(2^7))-1$$
$$\mathbf{1664} := (-1+7\times 2)\times(9\times 1-7)^{-2+9} = 92-((7-1)\times(9-271))$$
$$\mathbf{1665} := 1729-1-72+9 = ((((9-2)+7)-(1^9))\times(2^7))+1$$
$$\mathbf{1666} := 1729\times 1-72+9 = (9-(2^7))\times((1-9)+(2-(7+1)))$$
$$\mathbf{1667} := 1-72+9+1729 = ((92\times 7)-((1-9)\times(2^7)))-1$$
$$\mathbf{1668} := -1-7\times 2+9\times 17\times(2+9) = ((92\times 7)-((1-9)\times(2^7)))\times 1$$
$$\mathbf{1669} := (17^2-9)\times(-1+7)-2-9 = ((92\times 7)-((1-9)\times(2^7)))+1$$
$$\mathbf{1670} := (1-7+29)\times(1+72)-9 = 9+(2-(7\times(19-2^{7+1})))$$
$$\mathbf{1671} := 172\times(9+1)+7\times(2-9) = (((9^2)+7)\times(1-(9-27)))-1$$
$$\mathbf{1672} := (1+7)\times(2+9+1+7)\times(2+9) = ((9+((2+7)+1))\times(9+2))\times(7+1)$$
$$\mathbf{1673} := (1\times 7+29\times(1+7))\times(-2+9) = (9+(2^7))+(192\times(7+1))$$
$$\mathbf{1674} := (1\times 7-2+9+172)\times 9 = ((9\times(2+7))-19)\times(27\times 1)$$
$$\mathbf{1675} := 172\times 9+1+7\times 2\times 9 = 9+((2\times 7)\times(((19-2)\times 7)\times 1))$$
$$\mathbf{1676} := 1+7\times(-2+9)\times 17\times 2+9 = (92\times 7)-((1-9)\times((2^7)+1))$$
$$\mathbf{1677} := (17\times 2+9)\times(-1+7^2-9) = ((92+7)\times(19-2))-(7-1)$$
$$\mathbf{1678} := -1\times 7+2+9\times 17\times(2+9) = (((9^2)+71)\times(9+2))+(7-1)$$
$$\mathbf{1679} := 1-7+2+9\times 17\times(2+9) = (9+(2\times 7))\times(1+(9\times((2+7)-1)))$$
$$\mathbf{1680} := -1^7-2+9\times 17\times(2+9) = (9+((2+7)+192))\times(7+1)$$
$$\mathbf{1681} := -1^7\times 2+9\times 17\times(2+9) = ((9-2)+((71-9)\times 27))\times 1$$
$$\mathbf{1682} := 1^7-2+9\times 17\times(2+9) = 9-(2-(((71-9)\times 27)+1))$$
$$\mathbf{1683} := 1729-17-29 = (9+(2+(7-1)))\times(92+(7\times 1))$$
$$\mathbf{1684} := 1729-(-1+7)^2-9 = ((9+2)+((71-9)\times 27))-1$$
$$\mathbf{1685} := 1-(7-2)\times 9+1729 = ((9+2)+((71-9)\times 27))\times 1$$
$$\mathbf{1686} := -17\times 2-9+1729 = ((9+2)+((71-9)\times 27))+1$$
$$\mathbf{1687} := 1729+(-1+7)\times(2-9) = ((((9\times 27)\times(1^9))-2)\times 7)\times 1$$
$$\mathbf{1688} := (1-7+29)\times(1+72)+9 = ((((9\times 27)\times(1^9))-2)\times 7)+1$$
$$\mathbf{1689} := -1+7+(2\times 91+7-2)\times 9 = (((92-(7\times 19))^2)+7)+1$$
$$\mathbf{1690} := 1729+1-7^2+9 = (((9-2)\times(7+1))+9)\times(27-1)$$
$$\mathbf{1691} := (17+2)\times(9-1+72+9) = ((9^2)+(7+1))\times((9+2)+(7+1))$$
$$\mathbf{1692} := (1+7+2+91-7)\times 2\times 9 = ((92-7)\times((1+9)\times 2))-(7+1)$$
$$\mathbf{1693} := 1729\times 1-7-29 = ((9-((2\times 7)\times(1-9)))\times(2\times 7))-1$$
$$\mathbf{1694} := 1729+1-7-29 = (9-((2\times 7)\times(1-9)))\times((2\times 7)\times 1)$$
$$\mathbf{1695} := (-1+7)\times 2+9\times 17\times(2+9) = ((9-((2\times 7)\times(1-9)))\times(2\times 7))+1$$
$$\mathbf{1696} := (-1+7+2)\times(9\times 1+7\times 29) = 9+((((27\times 1)\times 9)-2)\times(7\times 1))$$

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$\mathbf{1697} := (-1+7)\times 291+7\times(2-9) = (9+((((27\times 1)\times 9)-2)\times 7))+1$

$\mathbf{1698} := 172\times(9+1)+7-29 = (((9+2)-7)-1)\times(((9^2)\times 7)-1)$

$\mathbf{1699} := -1^7-29+1729 = 9-(2\times(7-(((1+9)+2)\times 71)))$

$\mathbf{1700} := -1^7\times 29+1729 = (((92-71)\times 9)\times(2+7))-1$

$\mathbf{1701} := 1729-17-2-9 = (((92-71)\times 9)\times(2+7))\times 1$

$\mathbf{1702} := 1729-(-1+7)^2+9 = (9\times(271-(9^2)))-(7+1)$

$\mathbf{1703} := 1729-1-7-2\times 9 = (9\times(271-(9^2)))-(7\times 1)$

$\mathbf{1704} := (-1+7)\times(-2+(9+17)\times(2+9)) = ((9+27)-((1+9)+2))\times 71$

$\mathbf{1705} := 1729-17+2-9 = 9+(2\times(719+((2^7)+1)))$

$\mathbf{1706} := -1+7-29+1729 = (92\times(7+(1+9)))+(2\times 71)$

$\mathbf{1707} := 1\times 7-29+1729 = ((92-7)\times((1+9)\times 2))+(7\times 1)$

$\mathbf{1708} := 1729+1+7-29 = (((9^2)+71)+92)\times(7\times 1)$

$\mathbf{1709} := 172\times(9+1)+7-2\times 9 = ((9-27)\times(19\times(2-7)))-1$

$\mathbf{1710} := (17+2)\times(9\times 1+72+9) = 9\times((27\times 1)+(92+71))$

$\mathbf{1711} := -1\times 7-2-9+1729 = (((92+(7\times 1))\times 9)\times 2)-71$

$\mathbf{1712} := (1+7)\times(2+9\times 1+7\times 29) = ((9+2)+((7\times 1)\times(9\times 27)))\times 1$

$\mathbf{1713} := 172\times(9+1^7)+2-9 = 9+(2\times(71\times((9\times 2)-(7-1))))$

$\mathbf{1714} := -1-7+2-9+1729 = ((9-2)+(7\times(1+(9\times 27))))-1$

$\mathbf{1715} := 1729\times 1-7+2-9 = ((9+(2^7))\times((1+9)+2))+71$

$\mathbf{1716} := 1729+1-7+2-9 = (9\times(271-(9^2)))+(7-1)$

$\mathbf{1717} := 1729+17-29 = (9\times(2^7))-(1-(((9^2)\times 7)-1))$

$\mathbf{1718} := 1\times 7-2\times 9+1729 = 9+((2\times 719)+271)$

$\mathbf{1719} := -17-2+9+1729 = (9+2)+(7\times(1+((9\times 27)\times 1)))$

$\mathbf{1720} := 1729-1-72/9 = ((92+71)+9)\times(2+(7+1))$

$\mathbf{1721} := 172\times(9+1)+7/(-2+9) = 9-(2\times(71-(927\times 1)))$

$\mathbf{1722} := (1+7\times(29-1+7))\times(-2+9) = (((9\times 27)+(1^9))+2)\times(7\times 1)$

$\mathbf{1723} := 1729-17+2+9 = ((((9\times 27)+(1^9))+2)\times 7)+1$

$\mathbf{1724} := 1729\times 1-7\times 2+9 = ((9+(2\times 7))\times((1+(9^2))-7))-1$

$\mathbf{1725} := 1\times 7-2-9+1729 = (9-(2\times(7+(1+9))))\times(2-71)$

$\mathbf{1726} := 1729+1+7-2-9 = (9+2)+(7\times(1+((9\times 27)+1)))$

$\mathbf{1727} := 172\times(9+1^7)-2+9 = (9+2)\times((71+92)-(7-1))$

$\mathbf{1728} := 1729-1^{729} = (9\times 2)\times((7\times 1)+((9^2)+(7+1)))$

$\mathbf{1729} := 1729\times 1^{729} = (9+(2\times(71-9)))\times((2\times 7)-1)$

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34 References

The whole work is based on author's work on **recreation of numbers** and **magic squares**. Subject-wise details on these two topics are at the following links:

- Inder J. Taneja, **Recreation of Numbers**, *https://inderjtaneja.com/2019/06/27/publications-recreation-of-numbers/*.
- Inder J. Taneja, **Magic Squares**, *https://inderjtaneja.com/2019/06/27/publications-magic-squares/*.

*Publication list of author's work on **recreation of numbers** and **magic squares** as **pdf file** for download is given at above links.*