Arien Way 2025-08-05

TITLE

The Phi Growth Equation and the Phi Growth Scalar Constant (322)

ABSTRACT

This paper introduces the complete **Phi Series**—a system of nine numerical sequences generated from single-digit seeds (1 through 9) that extend and generalize the classical Fibonacci and Lucas sequences. Central to this framework are the **Phi Growth Equation** and the **Phi Growth Scalar Constant** (**322**), which together define the numerical relationships both within individual sequences and across macro-cycles. Each macro-cycle consists of 24 positions, revealing consistent and structured growth patterns. By formalizing these relationships, the Phi Series offers fresh insights into the underlying mathematical properties of recursive sequences and suggests potential applications in number theory, algorithmic design, and mathematical modeling.

INTRODUCTION

Fibonacci and Lucas

The Fibonacci series of numbers is one of the oldest and most well-known numeric sequences, defined by each number being the sum of its two predecessors. The Lucas series of numbers follows a similar pattern, except the sequence begins with a 2 as opposed to a 1 as in the Fibonacci series. These starting values can be viewed as *seeds* that catalyse differing growth rates while still converging toward the same Phi ratio between adjacent numbers.

Phi Seeds and Phi Series

The base-10 numbering system consists of ten digits, with zero often treated as a special case in mathematics. The Fibonacci and Lucas sequences are defined by their starting values as *seeds*: 1 and 2, respectively. This leaves the remaining numbers—3 to 9—open for exploration. Appendix A presents nine sets of number sequences that follow the original Fibonacci pattern. Each sequence begins with a *seed* value from 1 to 9, referred to here as

Phi Seeds. Collectively, these nine sets of progressively expanding number sequences are termed the **Phi Series**, ranging from Phi Series 1 to 9.

The Phi Series of numbers represent 9 distinct sets with respect to corresponding digital roots.

For example, for Phi Series 1 the sequence is 1, 1, 2, 3, 5, 8, 13, 21…

The digital root of these initial numbers is 1, 1, 3, 5, 8, 4, 3, with 13 = 1 + 3 = 4 and 21 = 2 + 1 = 3.

If a Phi Series is seeded with a 10, the sequence is al follows:

10, 1, 11, 12, 23, 35, 58, 93 and the corresponding digital roots are 1, 1, 2, 3, 5, 8, 4, 3.

Phi Series 1 and 10 share the same digital root pattern. Similarly, Phi Series 2 has an identical pattern to Phi Series 11 and so on.

Therefore, Phi Series 1-9 forms a complete set, as seeds greater than 9 create patterns that already appear within Phi Series 1-9.

Phi Growth Equation

Macro Scale – 24-Number Span

The Phi Series exhibits various patterns, including the base pattern in which each number is the sum of the two preceding numbers. While this pattern represents growth on a micro scale, another pattern illustrates growth on a macro scale. In this paper, the **macro scale** refers to number sequences **spanning 24 numbers**, irrespective of the starting position.

Table 1 illustrates the first 48 numbers of Phi Series 1 (Fibonacci). Some examples of macro scales, or sets of 24 numbers, are as follows: If the starting position is 1, then the 25th position defines a span of 24 numbers (25 - 1). Similarly, if the starting position is 13, then the 37th position defines a span of 24 numbers (37 - 13).

1	1	**13**	233	**25**	75,025	**37**	24,157,817
2	1	**14**	377	**26**	121,393	**38**	39,088,169
3	2	**15**	610	**27**	196,418	**39**	63,245,986
4	3	**16**	987	**28**	317,811	**40**	102,334,155
5	5	**17**	1,597	**29**	514,229	**41**	165,580,141
6	8	**18**	2,584	**30**	832,040	**42**	267,914,296
7	13	**19**	4,181	**31**	1,346,269	**43**	433,494,437
8	21	**20**	6,765	**32**	2,178,309	**44**	701,408,733
9	34	**21**	10,946	**33**	3,524,578	**45**	1,134,903,170
10	55	**22**	17,711	**34**	5,702,887	**46**	1,836,311,903

11	89	**23**	28,657	**35**	9,227,465	**47**	2,971,215,073
12	144	**24**	46,368	**36**	14,930,352	**48**	4,807,526,976

Table 1: The first 48 values of Phi Series 1 (Fibonacci).

Macro Scale – 12-Number Span

While a macro scale spans 24 numbers, Phi Series numbers can also be grouped into sets of 12 to provide deeper insights into these sets. In Phi Series 1 (Fibonacci), the value at the 12th position is 144, and at the 24th position, it is 46,368 (Table 1). The relationship between these numbers is such that 46,368/144 = **322**. However, the whole number 322 becomes evident only when examining the relationship between the 12th and 24th positions.

For example, the 13th number in the series is 233, and the 25th number is 75,025, with 75,025 ÷ 233 ≈ 321.995708... Other numbers separated by 12 positions also exhibit a relationship defined by an irrational number. While the 12th and 24th numbers appear unique in this regard, the actual relationships between numbers spaced 12 apart are more nuanced.

The number 322 is central to defining relationships among number sets spanning 12 and 24 numbers. If we maintain the rule that the larger number divided by the smaller number must yield 322 for numbers separated by 12 positions, then there must be an additional factor accounting for deviations from 322 when a Phi Series number is divided by a value 12 positions prior.

Earlier, we defined the ratio of the 25th position value to the 13th position value as approximately 321.995708. What value could be added to the numerator, 75,025, so that when divided by 233, it yields exactly 322? In this example, the number 1 can be added to 75,025.
(75,025 + 1)/233 = 322

We can also explore additional numbers spanning 12 positions.

- Position values 13th (233) and 25th (75,025): (75,025 + **1**)/233 = 322
- Position values 14th (377) and 26th (121,393): (121,393 + **1**)/377 = 322
- Position values 15th (610) and 27th (196,418): (196,418 + **2**)/610 = 322
- Position values 16th (987) and 28th (317,811): (317,811 + **3**)/987 = 322

As additional terms are analyzed, a recurring relationship emerges between values spanning 12 positions, following the classic Phi Series 1 (Fibonacci) pattern: 1, 1, 2, 3, and so on. The increment added to each numerator also increases in accordance with this same pattern, underscoring that this sequence serves as the initial sequence within Phi Series 1.

We now have three numbers that when combined yield the number 322. For example, for positions 1, 13, and 25 the relationship can be defined as follows:

(75,025 + 1)/233 = 322 or
(25th position value + 1st position value)/13th position value 13 = 322

We can summarize these relationships as:

$$(V_{n+24} + V_n) / V_{n+12} = 322$$

The equation can also be written as

$$\mathbf{V_n = (V_{n+12} \times 322) - V_{n+24}}$$

- V_n represents a value at position n.
- V_{n+12} represents a value as position $n+12$.
- V_{n+24} represents a value as position $n+24$.

This equation, referred to here as the **Phi Growth Equation**, describes any Phi Series value as the value 12 positions ahead, multiplied by 322, minus the value 24 positions ahead. The number **322** is referred to here as the **Phi Growth Scalar** constant.

We can plug additional values into the equation and examine the numbers at positions 22, 34, and 48, spanning 12 (34-22) and 24 (46-22) positions from the initial 22nd position value.

V_n n=**22**	17,711	V_{n+12} 22+12=**34**	5,702,887	V_{n+24} 22+24=**46**	1,836,311,903

17,711 = (5,702,887 × 322) - 1,836,311,903
17,711 = 1,836,329,614 - 1,836,311,903
17,711 = 17,711

Phi Series Numbers Below One

Initially, we explored the numbers at positions 12 and 24 and found that dividing the 24th by the 12th yielded 322 with no remainder: 46,368/144 = 322. To test the **Phi Growth Equation** with these values, we must span 24 numbers, which takes us below the starting position of 1. Table 2 lists the values of Phi Series 1, below the staring value of 1 at position 1.

Position	**-4**	**-3**	**-2**	**-1**	**0**	**1**	**+2**	**+3**	**+4**	**+5**	**+6**
←	-3	2	-1	1	0	1	1	2	3	5	→

Table 2: Phi Series 1 (Fibonacci) above and below the 1st position value of 1

Plugging in these values into the **Phi Growth Equation** yields

$$V_n = (V_{n+12} \times 322) - V_{n+24}$$

0 = (144 × 322) – 46,368
0 = 46,368 – 46,368
0 = 0

Negative Values

Let us now examine negative values—those that fall below the starting position of Phi Series 1. In Table 2, at position -4 (relative to the starting position), we find the value -3. The values at positions 8 and 20 can be viewed in Table 1.

V_n n=-4	-3	V_{n+12} -4+12=8	21	V_{n+24} -4+24=20	6,765

$$V_n = (V_{n+12} \times 322) - V_{n+24}$$

-3 = (21 × 322) – 6,765
-3 = 6,762 – 6,765
-3 = -3

The Phi Growth Equation remains intact even when negative numbers below the starting position are incorporated.

Other Phi Series

We can test whether the Phi Growth Equation, along with the Phi Growth Scalar constant, holds true across different Phi Series.

$$V_n = (V_{n+12} \times 322) - V_{n+24}$$

The following Phi Series position values have been obtained from Appendix A, where all nine Phi Series are listed. Table 3 lists Phi Series 1 to 9 Phi Growth Equation calculations for a variety of numeric sequence starting values (*n*).

The three Position columns represent the starting position (*n*), along with positions 12 and 24 steps ahead relative to *n*. The Position Value columns display the corresponding values in the Phi Series sequence for each position. The Calculation column contains these Position Values applied to the Phi Growth Equation.

	Position			**Position Value**			**Calculation**
	n	**n+12**	**n+24**	**Vn**	**Vn+12**	**Vn+24**	
Phi Series 1	0	12	24	0	144	46,368	0 = (144 × 322) – 46,368 0 = 46,368 – 46,368 0 = 0
Phi Series 2	-1	11	23	3	123	39,603	3 = (123 × 322) – 39,603 3 = 39,606 – 39,603 3 = 3
Phi Series 3	5	17	29	9	2,817	907,065	9 = (2,817 × 322) – 907,065 9 = 907,074 – 907,065 9 = 9
Phi Series 4	-6	6	18	-71	17	5,545	-71 = (17 × 322) – 5,545 -71 = 5,474 – 5,545 -71 = -71
Phi Series 5	-7	5	17	149	13	4,037	149 = (13 × 322) – 4,037 149 = 4,186 – 4,.37 149 = 149
Phi Series 6	-2	10	22	-16	160	51,536	-16 = (160 × 322) – 51,536 -116= 51,520 – 51,536 -16 = -16
Phi Series 7	2	14	26	1	1,241	399,601	1 = (1,241 × 322) – 399,601 1 = 399,602 – 399,601 1 = 1
Phi Series 8	3	15	27	9	2,241	721,593	9 = (2,241 × 322) – 721,593 9 = 721,602 – 721,593 9 = 9
Phi Series 9	6	18	30	32	10,480	3,374,528	32 = (10,480 × 322) – 3,374,528

Table 3: Phi Growth Equation examples for Phi Series 2 to 9.

For each Phi Series from 1 to 9, the Phi Growth Equation holds true. Any number within these series can be expressed as a combination of the sequence number positioned 12 steps ahead, 24 steps ahead, and the Phi Growth Scalar constant (322).

Energetic Signature

The Phi ratio converges to approximately 1.618034. When multiplied by its reciprocal, approximately 0.618034, the result is 1. In this context, the value 1.618034 is mathematically valid and well-founded.

While the Phi ratio has a precise mathematical value, it is also associated with a unique energetic signature—161. The idea that numbers possess energetic signatures based on three digits has been explored in various contexts, including discussions on the Phi ratio [1].

Given that the Phi Growth Scalar constant (322) is twice 161, this reinforces the idea that 161 can be considered the Phi resonance number.

CONCLUSION

This paper reveals a new mathematical equation and a previously unidentified constant. The **Phi Growth Equation** and the **Phi Growth Scalar** constant (**322**) establish structured relationships between three numbers across 24 sequence positions within the Phi Series. By analyzing the significance of 12- and 24-position spans, this work deepens our understanding of Phi-based numerical structures and their broader mathematical implications.

REFERENCE LIST

1. Way, Arien. “Decoding the Mysteries of the Universe”. Forthcoming (September), 37 Constellations, 2025.

APPENDIX A

The following table presents the nine **Phi Series**, numbered from 1 to 9, with their initial **Phi Seed** values at the starting position (#1). The number sequences expand forward beyond position #1 and also extend backward, below the starting point.

#	Series 1 Fibonacci	Series 2 Lucas	Series 3	Series 4	Series 5	Series 6	Series 7	Series 8	Series 9
-7	13	47	81	115	149	183	217	251	285
-6	-8	-29	-50	-71	-92	-113	-134	-155	-176
-5	5	18	31	44	57	70	83	96	109
-4	-3	-11	-19	-27	-35	-43	-51	-59	-67
-3	2	7	12	17	22	27	32	37	42
-2	-1	-4	-7	-10	-13	-16	-19	-22	-25
-1	1	3	5	7	9	11	13	15	17
0	0	-1	-2	-3	-4	-5	-6	-7	-8
1	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
2	1	1	1	1	1	1	1	1	1
3	2	3	4	5	6	7	8	9	10
4	3	4	5	6	7	8	9	10	11
5	5	7	9	11	13	15	17	19	21
6	8	11	14	17	20	23	26	29	32
7	13	18	23	28	33	38	43	48	53
8	21	29	37	45	53	61	69	77	85
9	34	47	60	73	86	99	112	125	138
10	55	76	97	118	139	160	181	202	223
11	89	123	157	191	225	259	293	327	361
12	144	199	254	309	364	419	474	529	584
13	233	322	411	500	589	678	767	856	945
14	377	521	665	809	953	1,097	1,241	1,385	1,529
15	610	843	1,076	1,309	1,542	1,775	2,008	2,241	2,474
16	987	1,364	1,741	2,118	2,495	2,872	3,249	3,626	4,003
17	1,597	2,207	2,817	3,427	4,037	4,647	5,257	5,867	6,477
18	2,584	3,571	4,558	5,545	6,532	7,519	8,506	9,493	10,480
19	4,181	5,778	7,375	8,972	10,569	12,166	13,763	15,360	16,957
20	6,765	9,349	11,933	14,517	17,101	19,685	22,269	24,853	27,437
21	10,946	15,127	19,308	23,489	27,670	31,851	36,032	40,213	44,394
22	17,711	24,476	31,241	38,006	44,771	51,536	58,301	65,066	71,831
23	28,657	39,603	50,549	61,495	72,441	83,387	94,333	105,279	116,225
24	46,368	64,079	81,790	99,501	117,212	134,923	152,634	170,345	188,056
25	75,025	103,682	132,339	160,996	189,653	218,310	246,967	275,624	304,281
26	121,393	167,761	214,129	260,497	306,865	353,233	399,601	445,969	492,337
27	196,418	271,443	346,468	421,493	496,518	571,543	646,568	721,593	796,618
28	317,811	439,204	560,597	681,990	803,383	924,776	1,046,169	1,167,562	1,288,955
29	514,229	710,647	907,065	1,103,483	1,299,901	1,496,319	1,692,737	1,889,155	2,085,573
30	832,040	1,149,851	1,467,662	1,785,473	2,103,284	2,421,095	2,738,906	3,056,717	3,374,528