INTRODUCTION TO SUPREME NUMBER (PART 2)

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Abstract

The categorization of supreme number of natural numbers was published on the first research paper (seventeen examples) and further analysis was considered in this paper as to check the supreme number with other branch of mathematics. As such this paper is adding seventeen more comparison or analysis to support the first paper of supreme number. Recalling a portion of the first paper's abstract as: a computing tool (digit summed) was introduced at first, and then analyzed. Later it was compared with the famous mathematical approaches as to find link between them. How does the supreme number influence mathematical approaches? This is the proving part of this research which has been checked with famous mathematics. I was surprised that most of the mathematics was influenced by one of the natural numbers. The assumption of old mathematicians is correct then. It was the most weighted number in the natural numbers. Yes, it is the nine (9) which had the supreme qualities and most of today's mathematics are directly and also indirectly have a relationship with it when digit-summed method is used.

Keywords: *Supreme number, Number nine, fundamental of numbers*

Introduction

Recalling the first research paper's analysing tool; in this case the summing tool (digit sum) or digital root; which is again used here to further the analysis and finally the outcome was categorized into four category as Supreme Numbers, None-Supreme Numbers, Ordered-Supreme Numbers and Random-Supreme Numbers, as how I did in the first paper[1,2].

{ 0 , 1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9 }

Therefore the fundamental set of natural numbers is shown above again. It starts from zero (0) and ends up with nine (9). Total of ten (10) digits which are often called as decimal numbering system and the entire mathematical world's result can be categorized into four using this approach. Seventeen more examples are included in this paper to support the first paper[3].

Analysis and discussion 1 (Supreme Numbers)

Firstly, the initial steps of Geometry Progression of natural numbers were analysed by Physicist Carl F. Gauss without noticing the supreme number's appearance[4].

```
  0 1 2 3 4 5 6 7 8 9
+ 9 8 7 6 5 4 3 2 1 0
  9 9 9 9 9 9 9 9 9 9
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Secondly, pick any two digit numbers; add them together until it comes to single digit and subtract it from the original two numbers. It gives exactly nine! Try it with any two digits. For an instance, let's consider 17.

17 => 1+7 = 8

```
  17
- 8
   9
```

Thirdly, the raise of power is shown as multiples occurrence of nine if a constant base of ten is used and subtracted digit one from it. Thus,

$10^{0} - 1 = 0$ (No occurrence)

$10^{1} - 1 = 9$ (1 occurrence)

$10^{2} - 1 = 99$ (2 occurrence)

$10^{3} - 1 = 999$ (3 occurrence)

The flow could be extended to infinity.

Fourthly, Euler's triangle or Eulerian Number (Table 1) was checked and it seemed to be the supreme number's arrangement as how we seen on the factorial analysis.

Table. 1 Euler's Triangle

1							1
1	1						2
1	4	1					6
1	11	11	1				6
1	26	66	26	1			3
1	57	302	302	57	1		9
1	120	1191	2416	1191	120	1	9

Fifthly, a conversion between binary and decimal numbers [5] proves a physical reverse of number nine and six. Such as:

6 = 0110

9 = 1001

Complement (toggle) of six is nine in binary equivalence or the other way round.

Sixthly, pick any number of 3 or 4 or more digits. Add with nine. Now perform digit sum of added numbers. Check with picked number's digit sum. See below.

Picked, 124 ; Add nine, 124+9 =133 ; Perform digit sum, 1+3+3= 7. Digit sum of picked number -124, 1+2+4=7

The adder nine is always hide-in, provided the picked digit sum is not nine.

Seventhly, again pick any number of 3 or 4 or more digits. Subtract with nine and repeat the subtraction until cannot subtract. Now perform digit sum of picked number and compare with the residue. They are same! If I picked 149; then subtract nine from it and repeat until get single digit. You will see 5. Now do digit sum of picked number. Both show the same. (149 = 1+4+9= 14 = 1+4= 5)

Eighthly, I had another idea rather than producing all the answers as nine. This time I checked other areas of mathematics to produce different answer than nine[6]. Does the number nine really help? The answer is yes! See table 2.

Table. 2 Simply Made

0	x	9	+	1	=	1
1	x	9	+	2	=	11
12	x	9	+	3	=	111
123	x	9	+	4	=	1111
1234	x	9	+	5	=	11111
12345	x	9	+	6	=	111111
123456	x	9	+	7	=	1111111
1234567	x	9	+	8	=	11111111
12345678	x	9	+	9	=	111111111
123456789	x	9	+	10	=	1111111111

Follow-up text after the first level of heading should be placed here.

Analysis and discussion 2 (None Supreme Numbers)

Firstly, the tetrahedral number was compared with triangular number. See triangular number in the following section how does it differ from each other!

Table. 3 Tetrahedral Numbers

Height of row (n)	Triangular Number	Tetrahedral Number	Digit Sum of Tetrahedral Number (D.S)
1	1	1	1
2	3	4	4
3	6	10	1
4	10	20	2
5	15	35	8
6	21	56	2
7	28	84	3
			3
			3

Secondly, although Fibonacci series numbers were categorized in the supreme number [7], the prime numbers that occurred in the series does not produce any digit sum of nine. One more prove of prime number[5]. Check it here!

2, 3, 5, 13, 89, 233, 1597, 28657, 514229……..

Thirdly, a square-free or quadratfrei, the integer, is one divisible by no perfect square; except 1. So none of the number gives digit sum nine. Expand and see it up to infinity.

1, 2, 3, 5, 6, 7, 10, 11, 13, 14, 15, 17, 19, 21, 22, 23, 26, 29, 30, 31, 33, 34, 35, 37, 38, 39,…….

Analysis and discussion 3 (ordered Supreme Numbers)

Firstly, the Floyd's triangle of right angled triangular array of natural numbers was checked and it comes under ordered supreme numbers' category as below. The fundamental numbers were not repeated in the answers but number nine repeats at every ninth places[8].

Table. 4 Floyd's triangle

										Digit Sum
1										1
2	3									5
4	5	6								6
7	8	9	10							7
11	12	13	14	15						2
16	17	18	19	20	21					3
22	23	24	25	26	27	28				4
29	30	31	32	33	34	35	36			8
37	38	39	40	41	42	43	44	45		9
46	47	48	49	50	51	52	53	54	55	1

Secondly, the triangular numbers of trees was considered and the arrangement was somehow ordered with nines. Thus: Tn = n(n+1) / 2

Table. 5 Triangular Numbers

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											Digit Sum	
					1						1	1
				1		1					3	3
			1		1		1				6	6
		1		1		1		1			10	1
	1		1		1		1		1		15	6
1		1		1		1		1		1	21	3
											28	1
											36	9
											45	9
											55	1
											66	3
											78	6
											91	1

Thirdly, the Hosoya's triangle was seen for the ordered supreme numbers (Hosoya's triangle is derived from Fibonacci numbers).

Table 6. Hosoya's Triangle

	Digit Sum
1	1
1 1	2
2 1 2	5
3 2 2 3	1
5 3 4 3 5	2
8 5 6 6 5 8	2
1 8 1 9 1 8 1	8
3 0 0 3	
2 1 1 1 1 1 1 2	4
1 3 6 5 5 6 3 1	
3 2 2 2 2 2 2 2 3	9
4 1 6 4 5 4 6 1 4	
5 3 4 3 4 4 3 4 3 5	
5 4 2 9 0 0 9 2 4 5	1

Analysis and discussion 4 (random Supreme Numbers)

Firstly, area of a circle was checked as it was given by Area, $A = \pi R^2$ (unit = m^2). The radius was increased from 0 to 9 which are listed below[9,10].

List 1 Area of Circle

$A = \pi R^2$

$= \pi (0)^2 = 0$

$= \pi (1)^2 = 3.141592564$

$= (3+1+4+1+5+9+2+5+6+4= 4)$

$= \pi (2)^2 = 12.56637061$

$= (1+2+5+6+6+3+7+0+6+1= 1)$

$= \pi (3)^2 = 28.27433388$

$= (2+8+2+7+4+3+3+3+8+8= 3)$

$= \pi (4)^2 = 50.26548246$

$= (5+0+2+6+5+4+8+2+4+6= 6)$

$= \pi (5)^2 = 78.53981634$

$= (7+8+5+3+9+8+1+6+3+4= 9)$

$= \pi (6)^2 = 113.0973355$

$= (1+1+3+0+9+7+3+3+5+5= 1)$

$= \pi (7)^2 = 153.93804$

$= (1+5+3+9+3+8+0+4= 6)$

$= \pi (8)^2 = 201.0619298$

$= (2+0+1+0+6+1+9+2+9+8= 2)$

$= \pi (9)^2 = 254.4690049$

$= (2+5+4+4+6+9+0+0+4+9= 7)$

Secondly, natural Logarithm was checked and categorized here for random appearance of number nine.

List 2 Power of Natural Logarithm

e° = 1

e^{1} = 2.718281828

(2+7+1+8+2+8+1+8+2+8= 2)

e^{2} = 7.389056099

(7+3+8+9+0+5+6+0+9+9= 2)

e^{3} = 20.08553692

(2+0+0+8+5+5+3+6+9+2= 4)

e = 54.59815003

(5+4+5+9+8+1+5+0+0+3= 4)

e = 148.4131591

(1+4+8+4+1+3+1+5+9+1= 1)

e = 403.4287935

(4+0+3+4+2+8+7+9+3+5= 9)

e = 1096.633158

(1+0+9+6+6+3+3+1+5+8= 6)

e = 2980.957987

(2+9+8+0+9+5+7+9+8+7= 1)

e = 8103.083928

(8+1+0+3+0+8+3+9+2+8= 6)

Thirdly, surface area of a sphere was checked as it was given by Area, $A = 4 \pi R^2$ (unit = m^2). The radius was increased from 0 to 9 which are listed below.

List 3 Surface area of Sphere

$A = 4 \pi R^2$

$= 4 \pi (0)^2 = 0$

$= 4 \pi (1)^2 = 12.56637061$

=(1+2+5+6+6+3+7+0+6+1 = 1)

$= 4 \pi (2)^2 = 50.26548246$

= (5+0+2+6+5+4+8+2+4+6= 6)

$= 4 \pi (3)^2 = 113.0973355$

= (1+1+3+0+9+7+3+3+5+5= 1)

$= 4 \pi (4)^2 = 201.0619298$

= (2+0+1+0+6+1+9+2+9+8= 2)

$= 4 \pi (5)^2 = 314.1592654$

= (3+1+4+1+5+9+2+6+5+4= 4)

$= 4 \pi (6)^2 = 452.3893421$

= (4+5+2+3+8+9+3+4+2+1= 5)

= $4\pi(7)^2$ = 615.7521601

= (6+1+5+7+5+2+1+6+0+1= 7)

= $4\pi(8)^2$ = 804.2477193

= (8+0+4+2+4+7+7+1+9+3 = 9)

= $4\pi(9)^2$ = 1017.87602

= (1+0+1+7+8+7+6+0+2 = 5)

There are still many branches of mathematics can be included here but only three were selected for comparison purposes[11,12,13].

Conclusion

Number nine (9) plays important role on many branch of mathematics inherently. Hence, it is named as supreme number of natural number due to the supreme qualities. Supreme Number is determined by performing digit-summed on any mathematical approach at the moment. The result of any mathematical approach is categorized into four as seen on the discussion. Many religions are supporting number nine as supreme number.

Acknowledgement

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