



Magic Squares

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Below, we see the magic square of three by three filled with the nine ciphers. Adding up these ciphers horizontally, vertically or diagonally, all result in 15. Adding up all nine ciphers gives 45 as an overall total.

Magic Square of 3×3 :

6	1	8
7	5	3
2	9	4

Next, we see the magic square of four by four filled with the first 16 integers. Adding up these integers horizontally, vertically or diagonally, all results in 34. Adding up all 16 integers gives 136.

Magic Square of 4×4 :

1	14	15	4
12	7	6	9
8	11	10	5
13	2	3	16

Next, we see the magic square of five by five filled with the first 25 integers. Adding up these integers horizontally, vertically or diagonally, all results in 65. Adding up all 25 integers gives 325.

Magic Square of 5×5 :

17	24	1	8	15
23	5	7	14	16
4	6	13	20	22
10	12	19	21	3
11	18	25	2	9

Next, we see the magic square of six by six filled with the first 36 integers. Adding up these integers horizontally, vertically or diagonally, all results in 111. Adding up all 36 integers gives 666. We will come back to both remarkable results.

Magic Square of 6×6 :

1	35	34	3	32	6
30	8	28	27	11	7
24	23	15	16	14	19
13	17	21	22	20	18
12	26	9	10	29	25
31	2	4	33	5	36

Next, we see the magic square of seven by seven filled with the first 49 integers. Adding up these integers horizontally, vertically or diagonally, all results in 175. Adding up all 49 integers gives 1225.

Magic Square of 7×7 :

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

Next, we see the magic square of eight by eight filled with the first 64 integers. Adding up these integers horizontally, vertically or diagonally, all results in 260. Adding up all 64 integers gives 2080. Please note that the chessboard has also 64 squares, and that the I Ching has 64 different hexagrams. Next, the Mayan calendar called Tzol'kin has 260 different combinations. We will come back to these 'coincidences'.

Magic Square of 8×8 :

1	63	62	4	5	59	58	8
56	10	11	53	52	14	15	49
48	18	19	45	44	22	23	41
25	39	38	28	29	35	34	32
33	31	30	36	37	27	26	40
24	42	43	21	20	46	47	17
16	50	51	13	12	54	55	9
57	7	6	60	61	3	2	64

Next, we see the magic square of nine by nine filled with the first 81 integers. Adding up these integers horizontally, vertically or diagonally, all results in 369. Adding up all 81 integers gives 3321.

Magic Square of 9×9 :

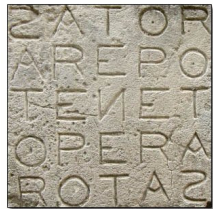
47	58	69	80	1	12	23	34	45
57	68	79	9	11	22	33	44	46
67	78	8	10	21	32	43	54	56
77	7	18	20	31	42	53	55	66
6	17	19	30	41	52	63	65	76
16	27	29	40	51	62	64	75	5
26	28	39	50	61	72	74	4	15
36	38	49	60	71	73	3	14	25
37	48	59	70	81	2	13	24	35

Magic Square:	3×3	4×4	5×5	6×6	7×7	8×8	9×9
Total per Line:	15	34	65	111	175	260	369
Overall Total:	45	136	325	666	1225	2080	3321

The 5 × 5 Magic Square with letters

Below, we see the 5 × 5 Magic Square with letters. These 25 letters correspond to the 25 numbers in the same position on the 5 × 5 square.

Magic Squares of 5 × 5:



S	A	T	O	R
A	R	E	P	O
T	E	N	E	T
O	P	E	R	A
R	O	T	A	S

17	24	1	8	15
23	5	7	14	16
4	6	13	20	22
10	12	19	21	3
11	18	25	2	9

The numerological value of each horizontal or vertical line of letters is 1 (see this paper to learn more about this: <http://www.pateo.nl/PDF/Numerology.pdf>).

$$\begin{aligned} \text{SATOR} &= \text{ROTAS} = 19 / 10 / 1 \\ \text{AREPO} &= \text{OPERA} = 28 / 10 / 1 \\ \text{TENET} &= 19 / 10 / 1 \end{aligned}$$

Now, let us count the different letters. There are 2 S's, 4 A's, 4 T's, 4 O's, 4 R's, 2 P's, 4 E's, and 1 N. Let us now add up the corresponding numbers for each letter with four occurrences:

$$\begin{aligned} \text{A (24)} + \text{A (23)} + \text{A (3)} + \text{A (2)} &= 52 \\ \text{T (1)} + \text{T (4)} + \text{T (22)} + \text{T (25)} &= 52 \\ \text{O (8)} + \text{O (16)} + \text{O (10)} + \text{O (18)} &= 52 \\ \text{R (15)} + \text{R (5)} + \text{R (21)} + \text{R (11)} &= 52 \\ \text{E (7)} + \text{E (6)} + \text{E (20)} + \text{E (19)} &= 52 \end{aligned}$$

Also adding up the four corners results in 52:

$$\text{S (17)} + \text{R (15)} + \text{R (11)} + \text{S (9)} = 52$$

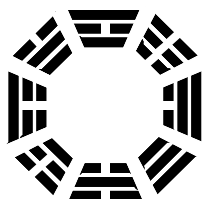
Adding up the corresponding numbers for both letters with two occurrences also results in 52, while each total per letter equals 26, which is precisely the halve of 52:

$$\text{S (17)} + \text{S (9)} + \text{P (14)} + \text{P (12)} = 52$$

This all shows the connection of the 5 × 5 Magic Square with the number 13. The average value of all letters is 13. The average value of the numbers in each line is also 13.

The 3 × 3 Magic Square with trigrams

The ciphers in the 3 × 3 Magic Square correspond to so-called trigrams:



Magic Square of 3 × 3:

4	9	2
3	5	7
8	1	6

The magic square of trigrams is called the Lo Shu Magic Square also known as the Ba Gua. Each trigram consists of three lines. Each line can be unbroken (Yang) or broken (Yin). Each trigram corresponds to an orientation or direction and has a specific meaning.

N	NE	E	SE	S	SW	W	NW
1	8	3	4	9	2	7	6
Water	Mountain	Thunder	Wind	Fire	Earth	Valley	Heaven
<i>Kan</i>	<i>Ken</i>	<i>Chen</i>	<i>Hsun</i>	<i>Li</i>	<i>Kun</i>	<i>Tui</i>	<i>Chyan</i>

When we combine the Lo Shu Magic Square with the similar Ho Tu Magic Square, we get the 64 hexagrams of the I Ching.

Correspondence of the Magic Squares with Heavenly Bodies

The table below shows the correspondence of the magic squares with heavenly bodies that surround our home planet.

Magic Square:	Heavenly Body
3 × 3	Saturn
4 × 4	Jupiter
5 × 5	Mars
6 × 6	Helios
7 × 7	Venus
8 × 8	Mercury
9 × 9	Luna

Magic Squares hidden in games

The three by three magic square is hidden in the game of Tic-Tac-Toe. When we play the game of Bingo, we use the five by five magic square. Please note that the letter 'N' in 'Bingo' is at the very same spot as in the ROTAS-square. In the Netherlands, the five by five magic square is also hidden in the game of Lingo, in which the players have to guess the right five letter word. Also in the name of that game, the letter 'N' is in the middle position. Further more, the nine by nine magic square is hidden in the game of Sudoku.

Remarkable 'coincidences'

It takes Mercury 88 days to make a full orbit. The magic square corresponding to Mercury is the 8 × 8 Magic Square.

It takes Venus 225 days to make a full orbit. The total of all numbers in the 7 × 7 Magic Square corresponding to Venus is 1.225.

TO BE CONTINUED

(This is version 0.4 of this paper. It was released on March 21th, 2012, in order to make the websites of Raphael easier to understand. These websites are mentioned at the webpage of the Pateo Academia: <http://www.pateo.nl/English/academia.htm>.)