Celebrating WWS's Birthday with the Magic Square

Happy Birthday to WWS!

Congratulations to WWS on reaching this remarkable milestone! To celebrate this special occasion, we have prepared a gift for WWS !

湘數

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Behold the Birthday Magic Square — a captivating arrangement of numbers.

1	9	19	99
97	21	7	3
10	2	98	18
20	96	4	8

The sum of every row, column, diagonal, and most 2x2 blocks is

128

In the top row is the birthday of WWS (1st September, 1999).
Like other magic squares, the sums of each row, column, and diagonal are the same.
But what's so great in this birthday magic square?
There are several other points of interest.

The sum of the four corner elements of the square is the same number: 1 + 99 + 20 + 8 = 128.
The sum of the numbers in the four central cells is 128.

1	9	19	99
97	21	7	3
10	2	98	18
20	96	4	8

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10	2	98	18
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The sums of the numbers in the same coloured cells are again the same number.
Isn't it amazing?

How do you construct a magic square for youself or for your loved ones?
Consider your date of birth like this d-m-yY and follow the given table.

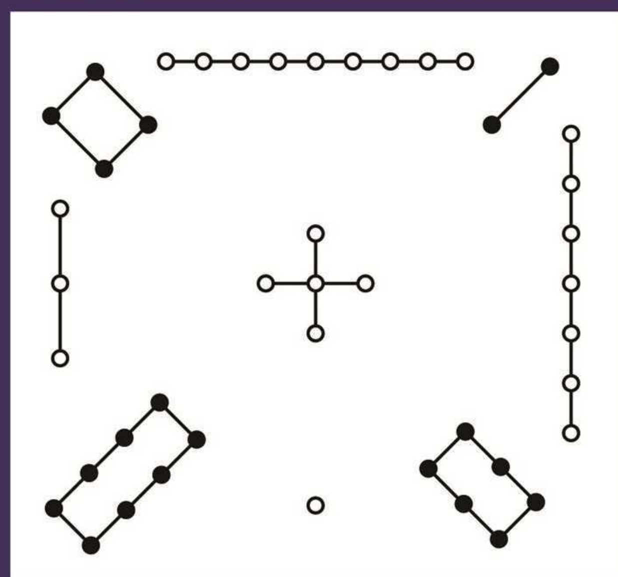
d	m	y	Y
Y - 2	y + 2	m - 2	d + 2
m + 1	d + 1	Y - 1	y - 1
y + 1	Y - 3	d + 3	m - 1

Let's try to make one

Once again, let's congratulate WWS on this remarkable milestone! May the next 25 years be filled with continued success and a never-ending pursuit of knowledge.

Hetu Luoshu

The origin of the magic squares can be traced back to the ancient China, credited to mathematician Yang Hui in the 13th century. The earliest magic square was called "Hetu Luoshu". In addition, ancient people used these magic squares to infer the laws of the astrology.



4	9	2
3	5	7
8	1	6

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尊 仁 承 學 華 湘 人

Talents nurtured, future empowered;
25 years and beyond

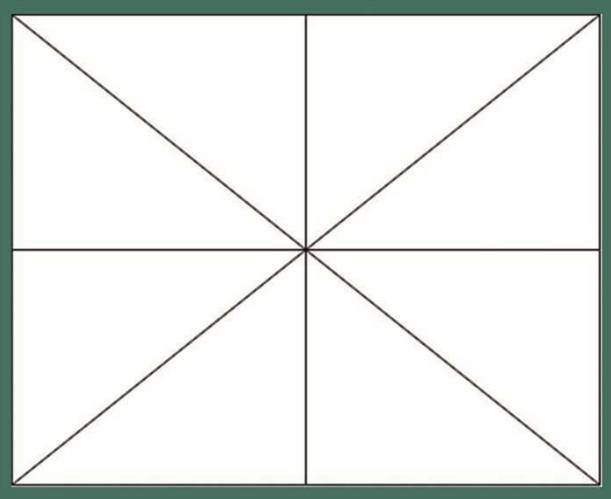
Let's split a birthday cake

Problem Statement:

There are three friends who ordered a rectangular cake for WWS's birthday. One of them was in a hurry so he cut a rectangular piece from the cake. The piece could be of any arbitrary size (smaller than the size of the cake) and rotation. Now the remaining two friends want to divide the remaining cake into two equal portions with a single straight cut.

Notes:

- The single straight cut can pass through the cut-out portion.
- An equal amount of cream and toppings is needed. (they cannot cut along the height of the cake)

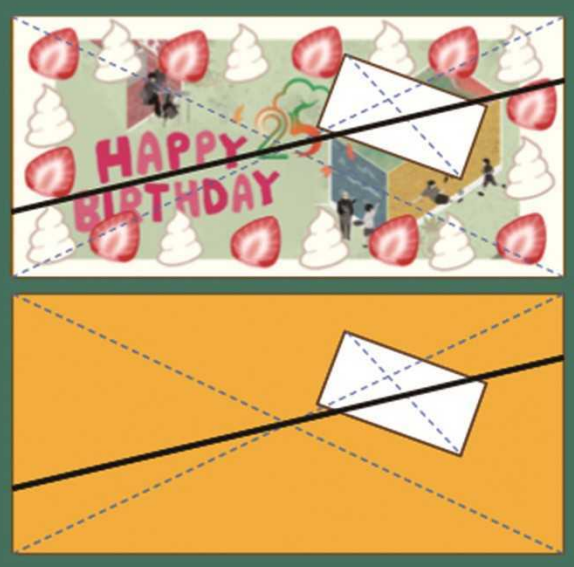


Observation:

- All lines in the above diagram divide the rectangle into two equal halves.
- The observation is that any line that passes through the center of the rectangle divides the rectangle into two equal halves.

Solution:

- By extending our observation, create a line such that it passes through both the center of the cake as well as the center of the missing piece.
- The line would divide the cake into two equal halves.



Source:

https://www.geeksforgeeks.org/puzzle-splitting-a-cake-with-a-missing-piece-in-two-equal-portion/

5 Fun facts about 25:

1. 25 is the smallest square that can be written by adding two consecutive squares : $3^2 + 4^2 = 5^2$.
2. 25 is the sum of the first 5 odd numbers: 25 = 1 + 3 + 5 + 7 + 9.
3. The powers of 25 (or any other number ending by 25) end with 25.
   i.e. $25^1 = 25$, $25^2 = 625$,
   $25^3 = 15625$, $25^4 = 390625$...
4. There are 25 primes less than 100.
5. $25 = 2^5 - (2 + 5)$

Hitori

Objective / Rules

- Eliminate numbers until there are no duplicates in any row or column.
- Eliminate numbers by marking them in Black.
- Black squares can't touch horizontally or vertically (diagonally is ok).
- Any White square can be reached from every other (i.e. they are connected).

1	2	2	3	1
5	3	1	2	1
2	4	3	4	3
4	2	3	1	3
5	4	1	5	3

GAME 1

4	4	3	5	3
4	5	3	3	2
1	1	5	5	4
1	3	2	4	2
5	5	4	1	3

GAME 2

1	1	4	2	5
5	4	3	4	5
2	3	4	1	4
4	1	1	3	4
1	4	2	5	3

GAME 3

2	2	3	3	5	5
3	3	4	1	2	5
5	4	2	2	4	3
5	5	2	3	4	3
2	4	5	5	3	4
4	3	1	5	2	2

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