

Weekly Challenge #10: Magic Squares

Welcome to the Count on Us Secondary Challenge's tenth weekly challenge. The best maths is simple to explain and hard to solve! In challenge 7 we showed you Arithmagons. A pattern in which numbers are combined according to a rule. The all time classic is magic squares. Here you place numbers into a square grid. If you add up the total for each row, column and diagonal you get the same number. This is called the magic number for that grid. Here is a 3x3 magic square with magic number 15.

2	7	6	→15
9	5	1	→15
4	3	8	→15
15	15	15	15

1. Getting started. Make a 3x3 magic square ...
 - a. using the numbers 1,2 and 3 three times each (really not a magic square as the numbers should be all different, but good for practice!)
 - b. with 9 different numbers with magic number 18.
 - c. with 9 different numbers with magic number 90.
 - d. with 9 different numbers with magic number 0.
2. Make a 3x3 magic square with these 9 prime numbers; 5, 17, 29, 47, 59, 71, 89, 101, 113
3. Make a 4x4 magic square with the numbers 1, 2, 3, 4, ..., 15, 16.
4. Now make another one, which is NOT a rotation or reflection of the first one.
5. Make a 4x4 magic square with 16 different numbers with a magic number of 40.
6. Remember Ramanujan and the Taxi cab number? He was born on 22nd December 1887 and made a magic square starting with his birth date (22/12/1887).

Make a magic square for today's date (28/05/2020). Do one for your birth date too!

Ramanujan's Magic Square

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

HELP US SPREAD THE WORD...

We want to make sure everyone in London knows about your fantastic maths problem solving. Share your thinking, your solutions and photos on Twitter! Keep them coming and remember - tag us and your school in any online activity.

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