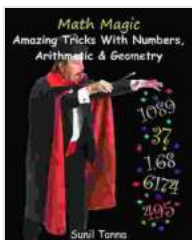


Math Magic: Amazing Math Tricks with Numbers, Arithmetic, and Geometry

Math is not just about numbers and equations. It's also about creativity, problem-solving, and sheer amazement. In this article, we'll share some of the most fascinating math magic tricks that will leave you scratching your head in wonder.



Math Magic: Amazing Tricks With Numbers, Arithmetic & Geometry! by Sunil Tanna

★★★★☆ 4.5 out of 5

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Number Tricks

Number tricks are a great way to show off your mathematical prowess. Here are a few of our favorites:

- **The 9's Trick:** Ask someone to choose any number between 1 and 10. Multiply the number by 9, and then subtract the original number. The result will always be a multiple of 9.
Example: If the person chooses 7, multiply 7 by 9 to get 63. Subtract 7 to get 56, which is a multiple of 9.

Solution: 9 is a factor of any number that ends in 0 or 9. When you multiply a number by 9, the result will always end in 0 or 9. Subtracting the original number removes the last digit, leaving only a number that is a multiple of 9.

- **The 11's Trick:** Choose any two-digit number. Reverse the order of the digits, and then subtract the smaller number from the larger number. The result will always be a multiple of 11.

Example: If you choose the number 37, reverse the digits to get 73. Subtract 37 from 73 to get 36, which is a multiple of 11.

Solution: When you reverse the digits of a two-digit number, you multiply the number by 10 and add the original digit. Subtracting the original number from the result cancels out the operation, leaving only a number that is a multiple of 11.

- **The 7's Trick:** Choose any three-digit number that is divisible by 3. Split the number into two parts: the first part is the first digit, and the second part is the remaining two digits. Multiply the second part by 2 and add the first part. The result will always be divisible by 3.

Example: If you choose the number 363, the first part is 3 and the second part is 63. Multiply 63 by 2 to get 126. Add 3 to get 129, which is divisible by 3.

Solution: When you split a three-digit number into two parts, you multiply the second part by 10 and add the first part. Multiplying by 10 moves the second part one place to the left, making it 10 times larger than the first part. Adding the first part back in makes the result divisible by 3.

Arithmetic Tricks

Arithmetic tricks are a bit more complex than number tricks, but they can be even more impressive. Here are a few of our favorites:

- **The Magic Square:** A magic square is a grid of numbers where the sum of each row, column, and diagonal is the same. Here is a simple 3x3 magic square:

8	3	4
1	5	9
6	7	2

The sum of each row, column, and diagonal is 15.

Solution: Magic squares are created using a specific algorithm. For a 3x3 magic square, the algorithm is as follows:

1. Start by placing the number 1 in the center square.
2. Move to the square above the center square and place the number 2.
3. Move to the square to the right of the center square and place the number 3.
4. Continue moving in a clockwise direction, placing the numbers 4-9 in the remaining squares.

This algorithm will always create a magic square.

- **The Babylonian Multiplication Trick:** This trick is a clever way to multiply two numbers without using a calculator. Here's how it works:
 1. Write the two numbers you want to multiply next to each other, with a line between them.
 2. Repeatedly double the bottom number and halve the top number, until the top number is 1.
 3. Add up the bottom numbers of the rows where the top number is odd.

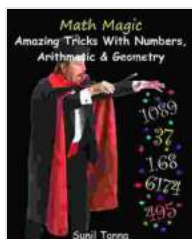
The result will be the product of the two original numbers.

Example: To multiply 123 by 45, we would do the following:

123	
<hr/>	
45	
<hr/>	
90	22
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180	11
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360	5
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720	2
<hr/>	
1440	1

The bottom numbers of the rows where the top number is odd are 45, 22, and 360. Adding these numbers together gives us 427, which is the product of 123 and 45.

Solution: This trick works because it is based on the distributive property of multiplication over addition. When we double the bottom number and halve the top number, we are essentially multiplying the top number by 2 and dividing the bottom number by 2. Adding up the bottom numbers of the rows where the top number is odd is the same as multiplying the original bottom number by the sum of the powers of 2 that correspond to the odd rows. In the example above, the odd rows are rows 1, 3, and 5. The powers of 2 that correspond to these

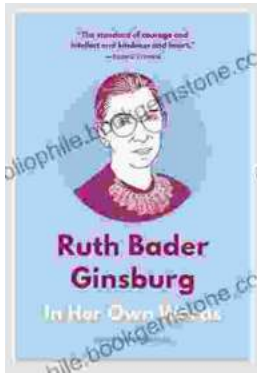


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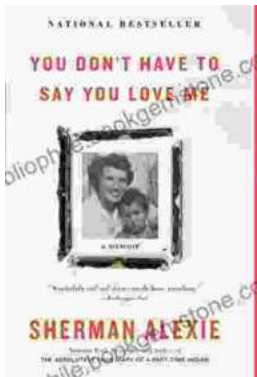
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