

Math Magic Number Tricks

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Presenters:

Jenny K. Tsankova, Polina Sabinin

jennymathed@gmail.com; polina@sabinin.info

A Fantastic Math Trick!

- Pick a 1-2 digit number. Write your number in spot 1 of the Number List.
- Pick another 1-2 digit number (or use the same one!) Write this number in spot 2.
- Add your first two numbers. Place the sum in spot 3.
- Add the numbers in spots 2 and 3. Write the new sum in spot 4.
- Add the numbers in spots 3 and 4. Write this sum in spot 5.
- Continue adding consecutive numbers until you fill in all ten spots.

The Number List

Spot Number

1	—
2	—
3	—
4	—
5	—
6	—
7	—
8	—
9	—
10	—

Now, add up all ten of your numbers.

Write the sum at the bottom of this page and then tear off the sum!!!

Please do not let me see it!

I will be able to quickly find the sum of all ten of your numbers.

Multiply by 11

To multiply any two digit number by 11:

- For this example we will use 54.
- Separate the two digits in you mind (5__4).
- Notice the hole between them!
- Add the 5 and the 4 together ($5+4=9$)
- Put the resulting 9 in the hole 594. That's it! $11 \times 54=594$

The only thing tricky to remember is that if the result of the addition is greater than 9, you only put the "ones" digit in the hole and “carry” the "tens" digit from the addition. For example $11 \times 57 \dots 5_7 \dots 5+7=12 \dots$ put the 2 in the hole and add the 1 from the 12 to the 5 in to get 6 for a result of 627 ... $11 \times 57 = 627$

Multiply Up to 20X20 In Your Head

With this trick, you will be able to multiply any two numbers from 11 to 19 in your head quickly, without the use of a calculator.

- Take 15×13 for an example.
- Always place the larger number of the two on top in your mind.
- Then draw the shape of Africa mentally so it covers the 15 and the 3 from the 13 below. Those covered numbers are all you need.
- First add $15 + 3 = 18$
- Add a zero behind it (multiply by 10) to get 180.
- Multiply the covered lower 3 x the single digit above it ($3 \times 5 = 15$)
- Add $180 + 15 = 195$.

Guess My Age 1

AB is your age or think of a two-digit number:

- Multiply the tens digit by 5
- Add 3 to the result
- Double the result
- Add the ones digit
- Tell me the answer
- (I subtract 6 and tell them their age or the two digit number AB).

$2(5a + 3) + b = 10a + 6 + b$ Now tell me the answer. I will subtract 6 and get their age.

Guess My Age 2

Number of times you want to go out and eat, more than 0 less than 10.

- Double that number and Add 5 to the result.
- Multiply the result by 50
- If you have already had your birthday this year, add 1760, if not – add 1759
- Subtract your 4-digit birth year. Voila!

$$50(2a + 5) = 100a + 250$$

$$\quad \quad \quad \underline{+1759 \text{ (1760)}}$$

$$100a + 2009 \text{ (2010)}$$

Then subtract the 4 digit number of your birth year.

You get a 3-digit number (the number of times you want to go out and eat and your age).

Tell the Total

- Let a person write down a row of six figures. Then write something on a piece of paper and lay it aside.
- Another person writes six figures beneath the first row.
- Then you write a number of six figures.
- Another person obliges with a number of six figures, and
- you do the same.
- Ask students to add all the numbers. When the sum is added, a total is reached. Your paper is unfolded, and there is the answer!

Method: Note the first number written. Add to it 2,000,000, and subtract 2. That is what you write on the piece of paper. Just put down 2 less than the number written, and put a figure 2 in front of it!

When the second number is written, you write your number. Just add enough to each number in the second row to make each figure total 9.

When the fourth row is written, you write the fifth, and make the fourth row total 9 for every figure. That will bring your answer.

Example: A person writes 347,628. On your paper write 2,347,626. Now the addition may appear like this:

First row.....	347,628
Second row.....	312,799
Your row.....	687,200
Fourth row.....	810,204
Your row.....	189,795
Total.....	2,347,626

Read your Mind 1

Choose a 4-digit number, add up the digits and subtract the sum from the original number.

Cross one of the digits of the difference, tell me the other 3 and I will tell you which digit you have crossed out.

Math trick is based on the property that if you add up the digits of any number and subtract that sum from the original number, the difference is a multiple of 9.

Two digit number $AB = 10A + B$

The trick asks for: $10A + B - (A + B) =$

$10A + B - A - B = 9A$ or a multiple of 9.

Read your Mind 2

Math trick with tiles is also based on the property that if you add up the digits of any number and subtract that sum from the original number, the difference is a multiple of 9. The trick asks participants to keep this process until the number of tiles reach a 1 digit number which is 9.

The audience leads the trick

Think of a number, any positive integer (but keep it small so you can do computations in your head).

1. Square it. X square
2. Add the result to your original number. X squared + X
3. Divide by your original number. $X(X + 1) / X = X + 1$
4. Add, oh, how about 17 (anything the audience can say)
5. Subtract your original number. (X goes away)
6. Divide by 6.

The number you are thinking of now is $(1+17)/3 = 6!$

Card Trick

Select a card from an ordinary deck. Count the Ace as one, number cards as their face value, and Jack as 11, Queen as 12 and King as 13. Double the value of your card and then add 1. Multiply this number by 5. If the selected card is a club, add 1; if it is a diamond, add 2; if it is a heart, add 3; and if it is a spade, add 4. If the result is 109, what card was selected?

I can see in your pocket

1. Multiply your age by 2.
2. Add 5.
3. Multiply this sum by 50.
4. Subtract 365.
5. Add the amount of loose pocket change, but do NOT count change totaling \$1 or over (i.e., must be less than \$1)
6. Add 115 -- final outcome:

Notice that the *first two digits will be the person's age*, and the *last two digits are the amount of the person's pocket change*.

Age is the number AB

$$50(2AB + 5)$$

$$100 AB + 250 - 365$$

$$100 AB - 115 + \text{change} + 115$$

$$100 \text{ times your age} + \text{change}$$

The following math “tricks” are from *Mathematics magic and mystery* by Martin Gardner

1. Magic Squares
2. Gibson’s Circled Dates
3. Guessing the Dice