Mathematics tricks

Multiply Up to 20X20 In Your Head:[top]

In just FIVE minutes you should learn to quickly 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.

I will assume that you know your multiplication table reasonably well up to 10x10.

Try this:
- Take 15 x 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 the "5" (3x5= 15)
- Add 180 + 15 = 195.

That is It! Wasn't that easy? Practice it on paper first!

As it gets harder with the larger numbers, I will start with multiplying two numbers in the twenties. For example,

23×27
- Step 1. Add the 3 (from the 23) to the 27: 3 + 27 = 30
- Step 2. Multiply the result by 10: 30 × 10 = 300
- Step 3. Double that result: 2 × 300 = 600
- Step 4. Multiply 3 (from the 23) and 7 (from the 27): 3 × 7 = 21
- Step 5. Add these last two products: 600 + 21 = 621

The 11 Rule : [top]

You likely all know the 10 rule (to multiply by 10, just add a 0 behind the number) but do you know the 11 rule? It is as easy! You should be able to do this one in you head for any two digit number. Practice it on paper first!
- To multiply any two digit number by 11:

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- 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 x 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 x 57 ... 5__7 ... 5+7=12 ... 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 x 57 = 627

Practice it on paper first!

Finger Math: 9X Rule : [top]

To multiply by 9,try this:
- Spread your two hands out and place them on a desk or table in front of you.
- To multiply by 3, fold down the 3rd finger from the left. To multiply by 4, it would be the 4th finger and so on.
- the answer is 27 ... READ it from the two fingers on the left of the folded down finger and the 7 fingers on the right of it.

This works for anything up to 9x10!

Square a 2 Digit Number Ending in 5 : [top]

For this example we will use 25
- Take the "tens" part of the number (the 2 and add 1)=3
- Multiply the original "tens" part of the number by the new number (2x3)
- Take the result (2x3=6) and put 25 behind it. Result the answer 625.

Try a few more 75 squared ... = 7x8=56 ... put 25 behind it is 5625. 55 squared = 5x6=30 ... put 25 behind it ... is 3025. Another easy one!

Practice it on paper first!

Square a 2 Digit Number, for this example 37: [top]

Square 2 Digit Number: UP-DOWN Method
- Look for the nearest 10 boundary
- In this case up 3 from 37 to 40.
- Since you went UP 3 to 40 go DOWN 3 from 37 to 34.
- Now mentally multiply 34x40
- The way I do it is 34x10=340;
- Double it mentally to 680
- Double it again mentally to 1360
- This 1360 is the FIRST interim answer.
- 37 is "3" away from the 10 boundary 40.
- Square this "3" distance from 10 boundary.
- 3x3=9 which is the SECOND interim answer.
- Add the two interim answers to get the final answer.
- Answer: 1360 + 9 = 1369

Multiply By 4 : [top]

To quickly multiply by four, double the number and then double it again.
Often this can be done in your head.

For example take 8 to multiple with 4.
- Double the the number 8 i.e.8+8=16
- Now again double the number 16 i.e.16+16=32.
- There fore answer is 4*8=32.

isn's is easy!

Multiply By 5 : [top]

To quickly multiply by 5, divide the number in two and then multiply it by 10.