

Tips and tricks

99 Heaven

Multiplying by 99 is difficult, right? **Wrong!**

Multiplying any 1 or 2 digit number by 99 couldn't be simpler using this method:

Taking 1 away from the number being multiplied gives you the left part of the answer.

Taking the number being multiplied from 100 gives you the right part of the answer.

An example?

66 X 99

Step 1 $66 - 1 = 65$ (left part of answer)

Step 2 $100 - 66 = 34$ (right part of answer)

Answer = 6534, simple!

How about trying with some numbers of your own?

1. Eleven times....!

Want to multiply any 2 digit number by 11 without getting a migraine?

No problem!

Add the digits of the 2 digit number and insert the answer in the middle of the digits, carrying if you need to, to the left.

An example?

Let's take 63×11

Step 1 $6 + 3 = 9$

Step 2 Insert the 9 between the digits of the number you started with.

Answer = 693. Done!

An example with carrying?

Let's take 65×11

Step 1 $6 + 5 = 11$

Step 2 6115

Step 3 Carrying the one of the 11 in the middle to the left gives the answer 715

Over to you to see if this simple method works for numbers of your own...

+ MATHS

+ 4

+ US

2. Age Wizard!

Want to find out someone's age without them telling you? Here's how...

Ask them to multiply their age by 7 using a calculator, and then ask them to multiply the result by 1443. You will see the person's age appears three times in the answer!

Try it out on a friend or relative and then see if you can work out how this 'trick' works.

3. VAT the Easy Way!

VAT is 17.5% - not an easy number to work with, you might think. But there's an easy way to work out the VAT on any price...

Divide the price by 10 and note down the answer. Then halve this figure, noting down the result. Again, halve this figure and write it down. Now add the three answers together and you have the amount of VAT.

An example?

Let's try and work out the VAT on £150

Step 1 150 divided by 10 = 15

Step 2 15 divided by 2 = 7.50

Step 3 7.50 divided by 2 = 3.75

VAT = 15 + 7.50 + 3.75 = 26.25

Breaking the calculation down into 10% + 5% + 2.5% takes the fear out of working out VAT!

4. Bridging the Divide!

Some handy tips on dividing?

- If a number ends in 0 it can be divided by 10
- If a number ends in 5 or 0 it can be divided by 5
- If a number is an even number it can be divided by 2
- If you add the digits of a number and the sum can be divided by 3 so can the original number
- If you add the digits of a number and the sum can be divided by 9 so can the original number

5. Remember the 12 Times Table the Easy Way!

Let's take the fraction $\frac{1}{2}$ and write a list of equivalent fractions in order...

1/2
2/4
3/6
4/8
5/10
6/12
7/14
8/16
9/18
10/20
11/22
12/24

That's great, you might think, but so what?

Well, if we put the digits in these fractions together, carrying where necessary, we get the 12X table.

Let's see how...

1/2 12
2/4 24
3/6 36
4/8 48
5/10 60 Carry the 1 and add to the 5
6/12 72 Carry the 1 and add to the 6
7/14 84 Carry the 1 and add to the 7
8/16 96 Carry the 1 and add to the 8
9/18 108 Carry the 1 and add to the 9
10/20 120 Carry the 2 and add to the 0
11/22 132 Carry the 2 and add to the 1
12/24 144 Carry the 2 and add to the 2

See if you can continue the sequence...?

6. Prove Your Brilliance by Adding Consecutive Numbers

Here is a method for adding consecutive number sequences.

Let's take a simple example to start with:

3, 4, 5, 6

We can do this in our heads – the total is 18.

But let's find a method that will work for more complicated sequences without diving for the calculator.

Let's call:

F = the First number in a sequence

L = the Last number in a sequence

N = the Number of numbers in our sequence

The calculation we have to do to work out the total is:

Step 1 Add F and L

Step 2 Multiply your answer by N

Step 3 And now divide the result by 2

So, for our simple example above, F is 3, L is 6, and N is 4.

Step 1 $3 + 6 = 9$

Step 2 $9 \times 4 = 36$

Step 3 $36 \text{ divided by } 2 = 18$

Correct!

See if this method will work for a consecutive sequence of even numbers such as 6, 8, 10, 12, 14, 16 or a consecutive sequence of odd numbers such as 11, 13, 15, 17, 19, 21?

7. Squaring Numbers Ending in 5

Want to square (multiply by itself) any number ending in 5. Here's how to impress yourself and your friends!

- Step 1 Dump the 5
- Step 2 Multiply the number you're left with by the next highest number
- Step 3 Tag on the digits 25 to the right-hand side of your answer.

An example?

Let's take 85 and see if we can work out its square (85 X 85)?

- Step 1 Dump the 5; that leaves us with 8
- Step 2 $8 \times 9 = 72$
- Step 3 7225

It's as easy as that!

Try your own numbers and prove you can be a multiplication wizard!

8. Square any Number of 9s!

Imagine being asked to calculate 999×999 without a calculator (or therapy!)

There's an easy way that might not make you famous but will make you feel good. The steps are easy:

- Step 1 Write down as many 9s as you are squaring less 1
- Step 2 Then on the right-hand side, write down an 8
- Step 3 Then, on the right-hand side, write as many 0s as you had 9s to start with
- Step 4 Put a 1 on the right hand side

Let's try it on our question 999×999 :

- Step 1 99
- Step 2 998
- Step 3 998000
- Step 4 9980001

Job done!

Try it for yourself with more 9s. How about 99999×99999 without a calculator? Go on – you can do it!

9. Multiplication square

A times tables square can be used to find the answer to any multiplication question between 1 and 10. Just find the first number you need to multiply along the top row of the square, and the second number in the first column. Then find where the two lines meet to find your answer. Using the square, we can see that $5 \times 10 = 50$. !

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100