Are you put off maths by memories of long division or long multiplication? Perhaps you feel bad because you don’t know your tables off by heart.

Sure, it’s good to know your tables and be able to do complex calculations. But calculators are there to help and no boss is going to be pleased with you taking time to work out $21.9 \times 8.4$ long hand when you can do it in seconds on a calculator.

Can calculators be wrong?

- Supposing you did the sum $21.9 \times 8.4$ on the calculator and got the answer 1839.6
- Would you know you’d made a mistake and what that mistake might have been?
- If you did a rough estimate, you could say that $21.9 \times 8.4$ is about $20 \times 8$ so the answer will be something more than 160, so you can tell your answer is way out.
- You’ve got the answer 10 times too big – you probably missed a decimal point and put in $219 \times 8.4$ or $21.9 \times 84$ (Try these two on your calculator and see what you get.)

Six nines are 54
Seven eights are 56
Five nines are 45
Three sevens are 21
Step 1 Work out a rough estimate.
Step 2 Carry out the calculation.
Step 3 Does it look right?
Step 4 Repeat the calculation to check.

Try these:

- You need to cut 19 pieces of cable, each of which is 6.87m long. How much cable will you use? Will there be enough if there's 125m left on the roll?
- You are working out your mileage claim for work and you have done three working weeks of 36 miles per day. How many miles have you done altogether?

The answer is: definitely not. Some are very complicated and allow you to do all kinds of geometry and trigonometry on them – they are called scientific calculators. Some are very simple and just allow you to add, subtract, multiply and divide – phone calculators are usually pretty simple. Others are somewhere in between; they may have memories and allow you to work out squares and square roots. The important thing is to understand and know how to use the one you use.
Single stage calculations

Single stage calculations are where you are doing a sum with only two numbers (these numbers may have lots of digits but each one is still a single number). Most calculators will handle these types of sums in the same way.

Here are some examples:

- 4 is a number with one digit
- 56.9 is a number with three digits
- 2,300 is a number with four digits (notice that two of them are zero but we still count them)

Look at these sums – they are all single stage sums:

- $4 \times 8 = 32$ (This sum involves two single-digit numbers giving a two-digit answer)
- $23 + 46 = 69$ (This one involves two two-digit numbers giving a two-digit answer)
- $276 \times 3.1 = 855.6$ (This one has a three-digit number and a two-digit number giving a four-digit answer)

Multi-stage calculations

You won't be surprised to know that multi-stage calculations involve more than one sum.

Here's a simple example. I had made 25 t-shirts to sell at a local craft fair. I've got 3 left. If I sold them for £6 each how much money did I take?

I need to take 3 away from 25 to find how many t-shirts I sold and then multiply my answer by 6 to find out how much money I took.

On one calculator I put the sum in like this:

$$25 - 3 \times 6 = \text{ and got the answer } 132$$

On my phone calculator I put in the same thing and got the answer 7
What’s happened here? Has the calculator gone wrong?

No. One calculator has worked out the sum as it went along - it took 3 away from 25 and multiplied the answer by 6.

The other has done the multiplication bit first (3 x 6) and taken that answer (18) away from 25.

The second calculator has followed the **BIDMAS** rule. This is a reminder of the set order for carrying out sums in a multi-stage calculation. **B**rackets, **I**ndices, **D**ivide, **M**ultiply, **A**dd, **S**ubtract. (You may remember it vaguely from school.)

**It’s all getting a bit complicated**

Don’t be put off – just check what your calculator does using the example sum above.

Then make sure you do the sums one stage at a time if you need to. In the example, do this:

\[
25 - 3 = 22 \quad \text{then} \quad 22 \times 6 = 132
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