

Long Division Step by Step

$$8,640 \div 15$$

Step one – Write out the multiples of what we are dividing by. In this example, 15. We will refer to this throughout the calculation.

15
30
45
60
75
90
105
120

Step two – Divide

How many 15s go into 8?

Zero, so now look at it as a 2 digit number.

How many 15s go into 86?

By looking at our multiples list, we can see that 15 goes into 86, 5 times. Answer goes on top.

$$15 \overline{) 8640}$$

$$15 \overline{) 8640} \quad 5$$

Step three – What multiple did I get to?

From the list of multiples, we can see that we got to the multiple 75. Write this underneath.

$$15 \overline{) 8640} \quad 5 \\ 75$$

Step four – Subtract

Subtract 75 from 86 (this would be what would be carried over in short division but we now work downwards in long division). $86 - 75 = 11$

$$15 \overline{) 8640} \quad 5 \\ - 75 \\ \hline 11$$

Step five – Bring down

Bring down the next digit, which in this case is 4.

$$15 \overline{) 8640} \quad 5 \\ - 75 \quad \downarrow \\ \hline 114$$

Step six – Repeat from step two – Divide

How many 15s go into 114?

Using the multiples list we can see that it goes in 7 times. Write on the top.

What multiple did I get to? 105.

Write underneath.

Subtract.

$$15 \overline{) 8640} \quad 57 \\ - 75 \quad \downarrow \\ \hline 114 \\ - 105 \\ \hline 9$$

Step seven – Bring down the next digit.

Repeat the steps from step two all over again.

For this calculation there is no remainder. As 90 is a multiple of 15.

If this final number to divide is not a multiple from the list, you would end up with a remainder after the final subtraction.

$$15 \overline{) 8640} \quad 576 \\ - 75 \quad \downarrow \\ \hline 114 \\ - 105 \quad \downarrow \\ \hline 90 \\ - 90 \\ \hline 00$$