



Ratios

Ratios are an alternative way of expressing fractions.

Example

Divide £500 between Ann and Bob in the ratio 3 : 2.

Step 1 Add the ratios together $3 + 2 = 5$

Step 2 Put each ratio over the total, to see what proportion each person receives $\frac{3}{5}$ and $\frac{2}{5}$

Step 3 Multiply the £500 by the fraction to calculation the proportion that each person receives

$$\text{Ann } \frac{3}{5} \times 500 = \text{£}300$$

$$\text{Bob } \frac{2}{5} \times 500 = \text{£}200$$

Remember

Ratios describe proportions. We can always multiply across ratios, or divide across them (as long as we do it to all of them).

For example, the ratio 3 : 2 is the same as 6 : 4 and 300 : 200.

Example

Divide £2400 in the ratio 6 : 2 : 8.

Step 1 $6 + 2 + 8 = 16$

Step 2 Our proportions are $\frac{6}{16}$ $\frac{2}{16}$ $\frac{8}{16}$

Step 3 To work out these proportions of £2400, the quickest way is to see that $\frac{1}{16}$ of £2400 is £150. Our proportions are therefore

$$150 \times 6 = \text{£}900$$

$$150 \times 2 = \text{£}300$$

$$150 \times 8 = \text{£}1200$$

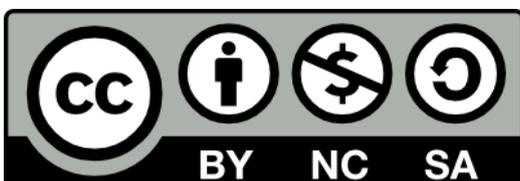
The answer is

£900 : £300 : £1200

Accuracy Tip

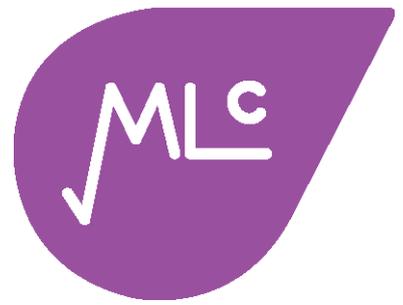
In a question like this, a quick check is that the proportions sum to the original total

$$900 + 300 + 1200 = 2400$$



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Example

In the following budget, what is the ratio of
Petrol : Consumables : Accommodation?

Step 1 Write the figures down in the correct order

Petrol : Consumables : Accommodation

250 : 150 : 450

Step 2 Simplify the ratios as much as possible (divide across by the highest common factor)

We see here that 50 is a factor of each figure.

Therefore, when we divide across by 50 we get

5 : 3 : 9

Example

ABC Ltd had an expected sales ratio of 2 : 3 for France : Germany sales. German operations achieve their target of €37,950.

What was the target for France?

Step 1 Adding the ratios together gives us 5

Step 2 Therefore the German target is $\frac{3}{5}$ of total target sales, in comparison to France's $\frac{2}{5}$

Therefore, to calculate the target for France, we need to divide €37,950 by 3, and multiply it by 2

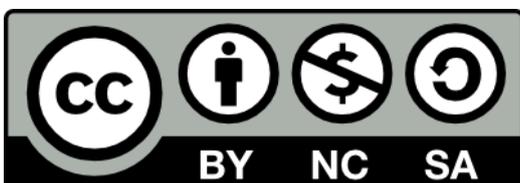
$37950 / 3 \times 2 = 25300$

Therefore the target for France was €25,300.

Budget	£
Petrol	250
Consumables	150
Accommodation	450

Remember

Everyone has topics that they prefer more than other topics – and topics that they want to avoid! Part of the reason that we suggest lots of practice, is so that you get more familiar with the ones that you don't like...



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