

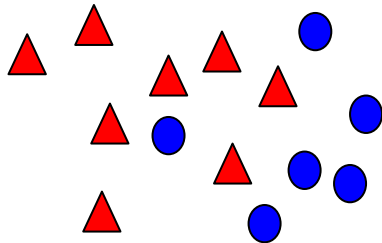
Ratio.

You should be able to: **Know what a ratio is**
Simplify a ratio
Split a quantity in a given ratio.

A ratio's is just a comparison of two or more quantities. Ratio is very similar to proportion.

Example 1: Look at the shapes below and give an expression of the ratio of:

- a) Circles : Triangles
- b) Triangles : Circles



a) Circles: Triangles
= 6:8

b) Triangles : Circles
= 8:6

Example 2: Simplify the above ratio's as far as you can

a) Circles: Triangles
= 6:8
= 3:4

b) Triangles : Circles
= 8:6
= 4:3

Notice that to simplify a ratio so that it remains the same I must divide both sides of the ratio by the same number. This is exactly the same as when we find equivalent fractions, we multiply and divide the numerator and denominator by the same number

Example 3: Split £20 in the ratio 2:3. How much does each person get?

- 1) $2 + 3 = 5$
- 2) $£20 \div 5 = £4$
- 3) $2 \times £4 : 3 \times £4$
£8 : £12
- 4) $£8 + £12 = £20$

To successfully do this, we **must** follow the process step by step to save us getting confused.

- 1) Add the ratios together. This tells us how many parts there are altogether split the money up into.
- 2) Divide the money by the total amount of parts, in this case its 5. This will tell us how much one part of the ratio is worth.
- 3) One person has 2 parts of the ratio whilst the other has 3, so multiply both of these amounts by 4 to get your answer.
- 4) Do the check, always add the answers together to make sure you get back to the original amount, if you don't, you have made a mistake.

Example 4: £35 is split in 3 ways in the ratio 1:3:3. How much will each person get?

1) $1 + 3 + 3 = 7$

2) $£35 \div 7 = £5$

3) $(1 \times 5) : (3 \times 5) : (3 \times 5)$
£5 : £15 : £15

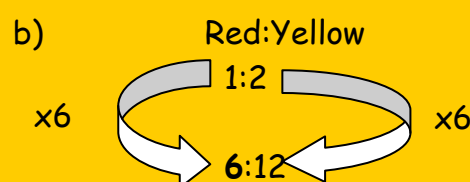
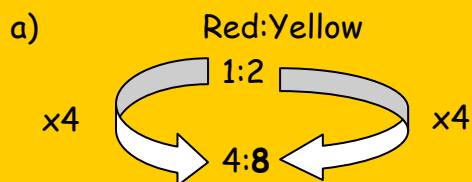
4) $5 + 15 + 15$
 $= £35$

Remember in these types of questions you are asked for how much each person gets, so you must explicitly say how much each person gets. Always follow the exact process as shown here to make sure you don't get confused.

Example 5: I mix red and yellow paint to make orange. I use the ratio 1:2

a) If I use 4 tins of red paint. How much yellow will I need?

b) If I use 12 tins of yellow paint. How much red will I need?



Here you are being asked to find the number on the other side of the ratio, when you know the first number. In the above examples I have put the number we are to find in **bold** to illustrate. You have to work out how you get from the top line to the bottom using the information you already have, then use this multiplication factor and apply it to the other side.

Be careful with the way you read ratio questions. They don't always tell you which ratio matches up with (in the above example) which colour. It's all down to the way you read it. I recommend, write it down as you read it. If it mentions red first then yellow, then that's the way the ratio is meant to be written. Remember and multiply the other side by the same amount.