

### Simplify ratios

Divide all parts of the ratio by a common factor.

5:10 (the highest common factor is 5 so divide both by 5)

1:2

8:10:4 (the highest common factor is 2 so divide all by 2)

4:5:2

### Ratio already shared

Find what one part of the ratio is worth using the unitary method.

Eg. Money was shared in the ratio 3:2:5 between Ben, James and Harry. Given that James had £16, find out the total amount of money shared.

£16 = 2 parts

$16 \div 2 = 8$

So £8 = 1 part

$3 + 2 + 5 = 10$  parts

So  $8 \times 10 = \underline{\text{£80}}$



Year 10 foundation topic 11

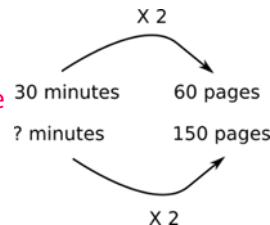
Ratio and proportion

What careers would use these skills?

Purchasing, sales, chefs, designers, construction.

### Compare ratios

Compare two things using multiplicative reasoning and applying this to a new situation. Identify one multiplicative link and use this to find the missing quantity.



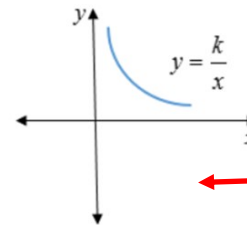
### Write ratio in form 1 : n

Divide both parts of the ratio by the number on the left

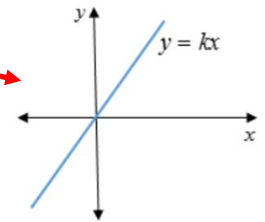
Eg. Write 3:2 in the form 1 : n  
(divide both sides by 3)

$1 : \frac{2}{3}$

**Direct proportion** = as one thing increases, the other thing increases.



**Inverse proportion** = as one thing increases, the other thing decreases.



### Unitary method

Find the value of a single unit and then find the necessary value by multiplying.

Eg. 3 cakes require 450g of sugar to make. Find how much sugar is needed to make 5 cakes.

3 cakes = 450g

So 1 cake = 150g ( $\div 3$ )

5 cakes =  $150 \times 5 = \underline{750\text{g}}$

### Share an amount into a given ratio

1. Add the total parts of the ratio.
2. Divide the amount to be shared by this value to find the value of one part.

3. Multiply this value by each part of the ratio.

Eg. Share £60 in the ratio 3 : 2 : 1

$3 + 2 + 1 = 6$

$60 \div 6 = 10$

$3 \times 10 = 30, 2 \times 10 = 20, 1 \times 10 = 10$

30:20:10

### Best buy

Find the unit cost by dividing the price by the quantity. The lowest number is the best value.

Eg. 8 cakes cost £1.28 and 13 cakes cost £2.05. Which is the best value?

$1.28 \div 8 = 0.16$

$2.05 \div 13 = 0.158$

So the pack of 13 cakes is the best value.