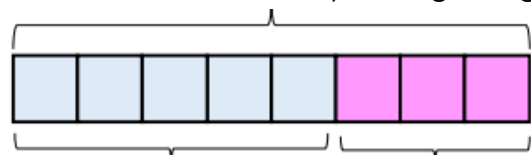


Representing a Ratio

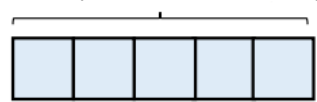
“For every 5 boys there are 3 girls” → **5 : 3**

This is the “whole” – boys and girls together



This represents the 5 boys This represents the 3 girls

This represents the 5 boys



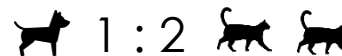
This is the “whole” – boys and girls together



This represents the 3 girls



Order is Important

“For every dog there are 2 cats”
Dogs : Cats



The ratio has to be written in the same order as the information given.

E.g. 2 : 1 would represent 2 dogs for every 1 cat

Keyword/Skill	Definition/Tips
Ratio	Ratio compares the size of one part to another part . Written using the ‘:’ symbol. 3 : 1 
Proportion	Proportion compares the size of one part to the size of the whole. In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
Share	Split or divide.
Parts	One cube in the bar model represents one part.
Direct Proportion	As one amount increases, another amount increases at the same rate.
Inverse Proportion	When one value decreases at the same rate that the other increases.
Bar Model	A picture (usually a bar) to represent a known or unknown number 3 : 1 
Enlargement	Make the object bigger or smaller
Constant of Proportionality	The constant value relating to amounts that rise or fall at the same rate together

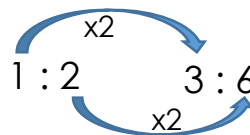
In The Same Ratio



The ratio of blue cubes to red cubes is **1 : 2**



If we have 3 blue cubes, to keep it in the same ratio as **1 : 2** we need double the amount of blue cubes. That means 6 red cubes are needed



Equivalent Ratios



These strips show that each ratio is equivalent as the same area of each strip is gold and silver.

Other Topics/Units this could appear in:

- Ratio & Proportion
- Direct and inverse proportion

Y7 Mastery: Unit 16 – Ratio Y8 Mastery: Unit 6 – Ratio Review

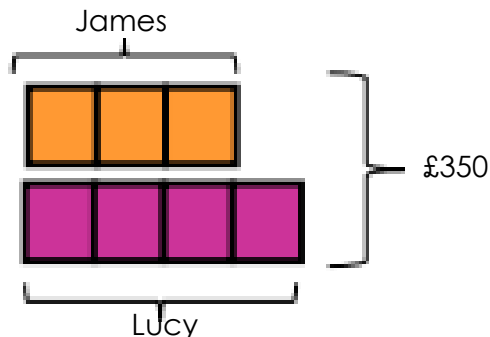
It may help you to look through **Y7 Mastery: Unit 12 – Transforming 2D Figures knowledge organiser** before starting this

Sharing a Whole into a Given Ratio (a:b)

James and Lucy share £350 in the ratio 3 : 4. Work out how much each person earns.

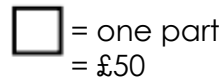
Model the Question

James Lucy
3 : 4



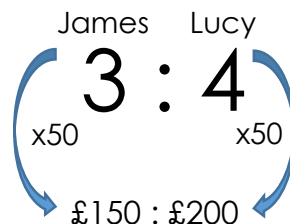
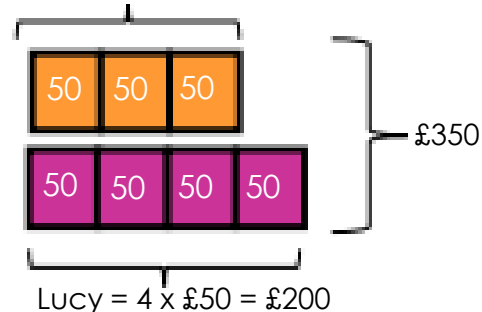
Find the Value of One Part

Whole £350
7 parts to share between (3 James, 4 Lucy)
 $£350 \div 7 = £50$



Put Back into the Question

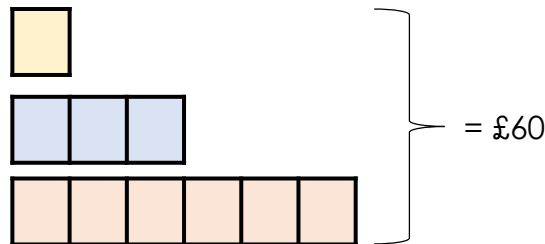
James = $3 \times £50 = £150$



Sharing a Whole into a Given Ratio (a:b:c)

For dividing a quantity into three parts, we can use the same method as above. Here we will have three sets of bars.

Example:
Charlie wants to divide £60 between three charities in the ratio 1 : 3 : 6



Altogether there is £60.
There are 10 parts altogether.
1 part = $£60 \div 10 = £6$

Each charity gets:

1 : 3 : 6
 $\times 6 \quad \times 6 \quad \times 6$
6 : 18 : 36

Keyword/Skill	Definition/Tips
Ratio	Ratio compares the size of one part to another part . Written using the ':' symbol. 3 : 1
Proportion	Proportion compares the size of one part to the size of the whole. In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
Share	Split or divide.
Parts	One cube in the bar model represents one part.
Direct Proportion	As one amount increases, another amount increases at the same rate.
Inverse Proportion	When one value decreases at the same rate that the other increases.
Bar Model	A picture (usually a bar) to represent a known or unknown number 3 : 1
Enlargement	Make the object bigger or smaller
Constant of Proportionality	The constant value relating to amounts that rise or fall at the same rate together

Other Topics/Units this could appear in:

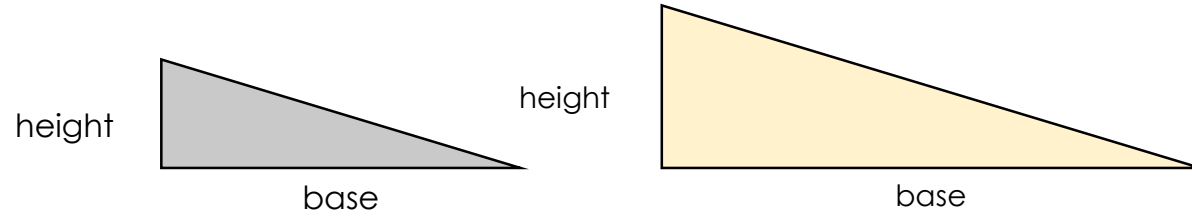
- Ratio & Proportion
- Direct and inverse proportion

Y7 Mastery: Unit 16 – Ratio Y8 Mastery: Unit 6 – Ratio Review

It may help you to look through **Y7 Mastery: Unit 12 – Transforming 2D Figures knowledge organiser** before starting this

Enlargement & Constant of Proportionality

The larger blue triangle is an enlargement of the smaller yellow triangle.



The constant of proportional helps us calculate the corresponding sides.

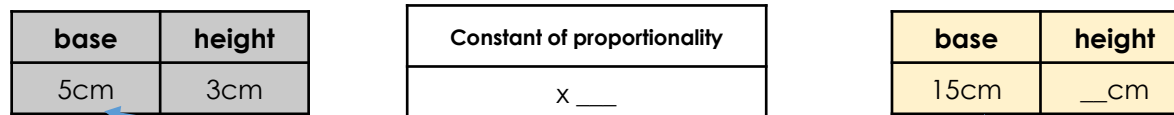
base	height
4cm	2cm
6cm	2cm

Constant of proportionality
x 2
x 3

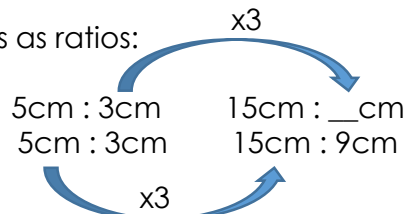
base	height
8cm	4cm
18cm	6cm

We can figure this out by comparing the ratios of each triangle.

Example:



Comparing the sides as ratios:



Looking at the corresponding sides, you can see the constant of proportionality would be x3.

Keyword/Skill	Definition/Tips
Ratio	Ratio compares the size of one part to another part . Written using the ':' symbol. 3 : 1
Proportion	Proportion compares the size of one part to the size of the whole. In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
Share	Split or divide.
Parts	One cube in the bar model represents one part.
Direct Proportion	As one amount increases, another amount increases at the same rate.
Inverse Proportion	When one value decreases at the same rate that the other increases.
Bar Model	A picture (usually a bar) to represent a known or unknown number 3 : 1
Enlargement	Make the object bigger or smaller
Constant of Proportionality	The constant value relating to amounts that rise or fall at the same rate together

Other Topics/Units this could appear in:

- Ratio & Proportion
- Direct and inverse proportion