Year 8 – Maths – Mastery: Unit 6 – Ratio Review

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

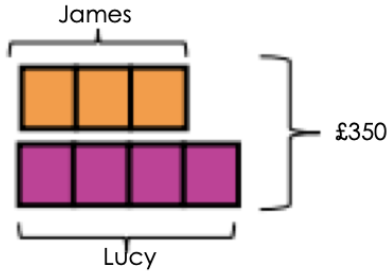
Sharing a Whole into a Given Ratio (a:b)

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

Model the Question

James Lucy

3 : 4

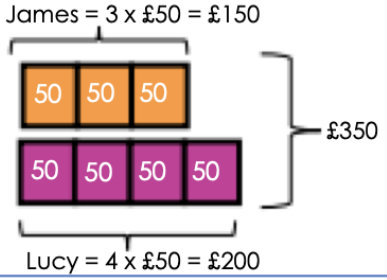


Find the Value of One Part

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

□ = one part = £50

Put Back into the Question



James Lucy

3 : 4

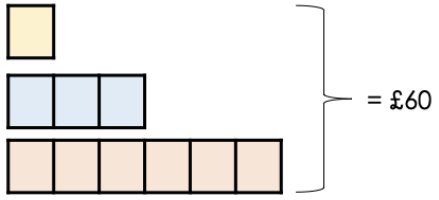
x50 x50

£150 : £200

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 ÷ 10 = £6

Each charity gets:

1	:	3	:	6
x6		x6		x6
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

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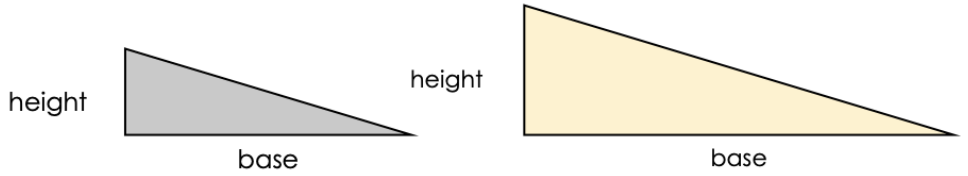
Enlargement & Constant of Proportionality

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:

base	height
5cm	3cm

Constant of proportionality
x ___

base	height
15cm	__cm

Comparing the sides as ratios:

5cm : 3cm
5cm : 3cm

x3

15cm : __cm
15cm : 9cm

x3

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

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