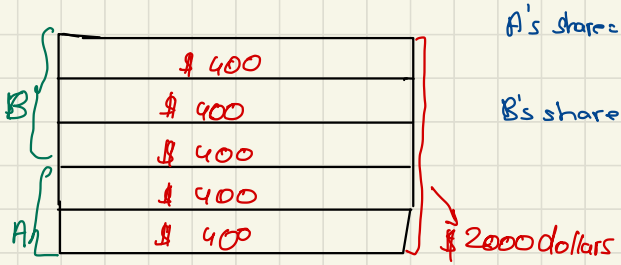
Ratios

Used to compare two similar quantities by division.

A : B

$ 2000 are divided in the ratio 2 : 3



A's share = $\frac{2}{5}$ of $800

B's share 2000 − 800 = $1200

Example 2

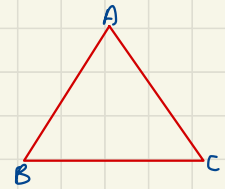
Total students = 30

B : G = 1 : 2

(i) Boys : $\frac{30}{3} = \boxed{10}$

(ii) Girls = $\frac{2}{3} \times 30 = \boxed{20}$

Example 3



Angles A B C are in the ratio 1 : 2 : 3 (A : B : C)

$C = \frac{3}{6} \times 180^{30} = 90$

Example 4

A rope is cut into two peices in the ratio 3:2. The birger peice is 9.6m. Which is the length of the chorter one.

3 : 9.6
2 : x

$x = 6.4m$

Maps

Scale

1cm = 4m

① 2cm : 5 Km

Express in the form 1 : n

2 : 5
1 : n → 1:250 000

$n = 2.5 \times 1000 = 2500 \times 100 \rightarrow 250\,000$

② 4cm : 2m

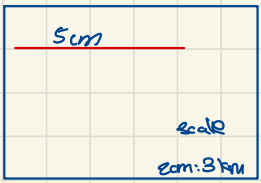
4cm : 200 cm

1 : 50

③ Map : Actual

2cm : 3Km

5cm : x



2 : 15

$x = 7.5Km$

⑤ Find the actual length of a boundary wall represented by 3.5 m on a map. Scale: 2 cm : 5 m

Map	:	Actual
2	:	5
3.5	:	x

$\frac{17.5}{2} = \boxed{8.75}$

⑥ Find the actual area of a park which has an area of 5 cm^2 on the map. Scale: 1 cm = 2 m

Map	:	Actual
$(1)^2$	:	$(2)^2$
1 cm^2	:	4 m^2
5	:	x

$\boxed{x = 20\ m^2}$

10. A map is drawn to a scale of 1 : 400 000.
(a) Find the actual distance, in kilometres, represented by 7 centimetres on the map.
(b) A city covers an area of 800 square kilometres. Find, in square centimetres, the area representing the city on the map.

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(a)

1	:	400 000
7	:	x

2800 000 ÷ 100 000 = $\boxed{28\ km}$

(b)

cm	km		cm^2	km^2
1	: 4	→	1	: 16
			x	: 800

$x = \frac{800}{16} \rightarrow \boxed{50\ cm^2}$