GCSE HIGHER · REVISION MAT 2

Scale factors for length, area and volume

1 A map has scale 1 : 50 000.

How long is a 3 km road on the map?

2 Squares have sides 4 cm and 12 cm.

Find the ratio of their areas.

3 Sam says that if lengths are multiplied by 3, volume is multiplied by 9.

Explain why he is wrong.

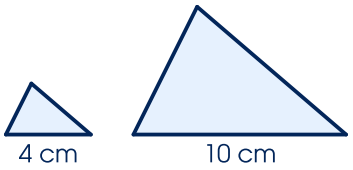
4 A 15 cm by 10 cm photo is enlarged so the 15 cm side becomes 24 cm.

Find the new width and the ratio of the areas.

5 Show that cubes with sides 2 cm and 5 cm have volumes in the ratio 8 : 125.

6 These triangles are similar.

The small one has area 8 cm².



Find the area of the large one.

7 Two similar cones have volumes 54 cm³ and 16 cm³.

Show that their heights are in the ratio 3 : 2.

8 Two similar paint tins are 10 cm and 15 cm tall.

The small tin holds 0.8 litres.

How much does the large tin hold?

Mr&Mrs MATHS

ANSWERS · REVISION MAT 2

Scale factors for length, area and volume

1 300 000 cm ÷ 50 000

6 cm

2 Length 1 : 3

Area 1 : 9

3 **Volume uses three lengths: $3^3 = 27$.**

4 Scale factor 1.6

Width 16 cm

Areas 25 : 64

5 $2^3 : 5^3$

8 : 125

6 Length 2 : 5, area 4 : 25

50 cm²

7 Volume 27 : 8

Length $\sqrt[3]{27} : \sqrt[3]{8} = 3 : 2$

8 Length 2 : 3, volume 8 : 27

$0.8 \times \frac{27}{8} = 2.7$ litres

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