GCSE HIGHER · REVISION MAT 4

Scale factors for length, area and volume

1 A map has scale 1 : 25 000.

What real distance does 8 cm represent?

2 Two similar triangles have corresponding sides 5 cm and 15 cm.

Find the area scale factor.

3 Explain why a scale of 1 : 100 means 1 cm represents 1 m.

4 A plan has scale 1 : 50.

A patio is 6 cm by 4 cm on the plan.

Find its real area in m^2.

5 Show that a sphere of radius 6 cm has 8 times the volume of a sphere of radius 3 cm.

6 Two similar statues are 30 cm and 90 cm tall.

The small one needs 0.2 litres of paint.

How much paint does the large one need?

7 Two similar solids have volumes in the ratio 125 : 8.

Show that their surface areas are in the ratio 25 : 4.

8 Two similar pyramids have volumes 192 cm^3 and 1500 cm^3.

The large one has base area 225 cm^2.

Find the base area of the small one.

Mr&Mrs MATHS

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Scale factors for length, area and volume

1 200 000 cm

2 km

2 Length factor 3

9

3 **100 cm = 1 m**

4 3 m by 2 m

6 m²

5 Length factor 2

Volume factor $2^3 = 8$

6 Length 1 : 3, area 1 : 9

1.8 litres

7 Length 5 : 2

Area 25 : 4

8 Volume 64 : 125, length 4 : 5

Area 16 : 25

144 cm²

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