GCSE HIGHER · REVISION MAT 4

Speed, density and pressure

1 A runner covers 400 m in 50 s.

Find her speed in m/s.

2 Copper has density 8.96 g/cm³.

Find the volume of 500 g of copper.

3 Explain why pressure falls when the same force acts on a larger area.

4 A bus travels 45 km at 30 km/h, then 30 km at 60 km/h.

Find the average speed.

5 A force of 360 N acts on 0.6 m².

Show that the pressure is 600 N/m².

6 A cylinder has radius 5 cm and height 10 cm.

Its density is 2.5 g/cm³.

Find its mass in kg.

7 Show that 54 km/h = 15 m/s.

8 A block exerts 400 N/m² resting on a 0.5 m by 0.4 m face.

Find the pressure when it rests on its 0.4 m by 0.25 m face.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Speed, density and pressure

1 **8 m/s**

2 500 ÷ 8.96

55.8 cm³

3 **Pressure = force ÷ area, so a bigger area gives a smaller answer.**

4 Times 1.5 h and 0.5 h

75 km in 2 h

37.5 km/h

5 360 ÷ 0.6

= 600

6 V = π × 25 × 10 = 785.4 cm³

× 2.5 = 1963.5 g

1.96 kg

7 54 000 ÷ 3600

= 15

8 Force = 400 × 0.2 = 80 N

80 ÷ 0.1

800 N/m²

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