FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

G16: Area and volume

Solve problems involving areas and volumes of prisms

20 marks · 25 minutes · Calculator allowed

1) A swimming pool is 25 m long and 10 m wide. It is 1 m deep at one end and 3 m deep at the other, sloping evenly. How many litres does it hold?

..... litres

[Question 1: 3 marks]

2) A tent is a triangular prism 3 m long. Its triangular ends have base 2 m and height 1.5 m. Find the volume of the tent and the total area of its two ends.

.....

[Question 2: 3 marks]

3) An L-shaped lawn is a 12 m by 8 m rectangle with a 4 m by 3 m corner removed. Grass seed is sown at 30 g per m^2 and comes in 500 g boxes. How many boxes are needed?

.....

[Question 3: 4 marks]

4) A cylinder has volume 360π cm^3 and radius 6 cm. Find its height.

..... cm

[Question 4: 2 marks]

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5) Water fills a 20 cm by 15 cm by 10 cm cuboid. It is poured into an empty cylinder of radius 10 cm. How deep is the water?

..... cm

[Question 5: 3 marks]

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6) A trapezium has area 45 cm^2 and parallel sides of 7 cm and 11 cm. Find its height.

..... cm

[Question 6: 2 marks]

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7) A cuboid has volume 240 cm^3 and a square base of side 4 cm. Find its total surface area.

..... cm^2

[Question 7: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	500 000	Cross-section trapezium $\frac{1}{2}(1 + 3) \times 25 = 50$ (P1); $\times 10 = 500\,m^3$ (P1); A1.
2	$4.5\,m^3$; $3\,m^2$	End area 1.5 (P1); volume (A1); two ends (A1).
3	6	Area 84 (P1, P1); 2520 g (P1); 6 boxes (A1).
4	10	$36\pi h = 360\pi$ (P1); A1.
5	9.55	$3000\,cm^3$ (P1); $\div 100\pi$ (P1); A1.
6	5	$9h = 45$ (P1); A1.
7	272	Height 15 (P1); $2 \times 16 + 4 \times 60$ (P1); A1.