

KS3 – Volume & Surface Area – Answers

Section A – Cubes & Cuboids

Q1

- a) Volume = length $\times$ width $\times$ height
- b) Volume = side $\times$ side $\times$ side (or side³)
- c) cm³
- d) The total area of all the outside faces/surfaces of a 3D shape.

Q2

- a) 96 cm³
- b) 300 cm³
- c) 343 cm³
- d) 64 cm³

Q3

- a) $x = 4$ cm
- b) $x = 6$ m
- c) $x = 5$ cm

Q4

- a) 150 cm²
- b) 92 cm²
- c) 108 m²

Q5

- a) 20,000 cm³
- b) 1,728 cm³
- c) 72,000 cm³

Q6

Height = $360 \div (10 \times 6) = 6$ cm.

Section B – Prisms

Q7

- a) The cross-section.
- b) Volume = area of cross-section $\times$ length
- c) A triangle
- d) A cuboid

Q8

- a) 120 cm^3
- b) 108 cm^3

Q9

- a) 84 cm^3
- b) 150 m^3
- c) 198 cm^3

Q10

- a) 20 cm^2
- b) 8 m
- c) 12 cm^2

Q11

- a) 360 cm^3
- b) 280 cm^3
- c) $1,200 \text{ cm}^3$

Q12

Cross-sectional area = $\frac{1}{2} \times 6 \times 5 = 15 \text{ cm}^2$.
Length = $180 \div 15 = 12 \text{ cm}$.

Section C – Cylinders

Q13

- a) Circle
- b) Area = πr^2
- c) Volume = $\pi r^2 h$
- d) Diameter = $2 \times$ radius.

Q14

- a) 226.2 cm^3
- b) 785.4 cm^3
- c) 301.6 cm^3
- d) 314.2 m^3

Q15

- a) 351.9 cm^3
- b) 565.5 m^3
- c) 1017.9 cm^3

Q16

- a) 4.0 cm
- b) 4.0 cm
- c) 4.0 cm

Q17

- a) 339.3 cm^3
- b) 471.2 m^3
- c) 251.3 cm^3

Q18

Height = $785.4 \div (\pi \times 5^2) \approx 10.0 \text{ cm}$.