Year 8 Circles, Area and Volume – Developing

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Answers and worked solutions · 10 questions

A. Use area and volume

1. **81 cm^3**

Area of the triangle: ½ × 3 × 3 = 4.5 cm^2

Volume = area of cross-section × length = 4.5 × 18 = 81 cm^3

2. **240 cm^3**

Area of the triangle: ½ × 4 × 6 = 12 cm^2

Volume = area of cross-section × length = 12 × 20 = 240 cm^3

3. **253 cm^2**

Base: 11 × 11 = 121 cm^2

Four triangles: 4 × ½ × 11 × 6 = 132 cm^2

Total: 253 cm^2

4. **261 cm^2**

Base: 9 × 9 = 81 cm^2

Four triangles: 4 × ½ × 9 × 10 = 180 cm^2

Total: 261 cm^2

5. **a rectangle 4 cm by 3 cm**

Divide each real length by 2

8 ÷ 2 = 4 cm and 6 ÷ 2 = 3 cm

6. **125.6 m**

One turn: C = 3.14 × 80 = 251.2 cm

50 turns: 12560 cm = 125.6 m

7. **about 112 km/h**

70 × 1.6

= 112 km/h

8. **157 m**

C = 2πr = 2 × 3.14 × 25

= 157 m

9. **32.5 cm^2**

Area of a trapezium = ½(a + b)h

½ × (3 + 10) × 5 = 32.5 cm^2

10. **The formula is ½(a + b)h, so the area is half of that: 45 cm^2.**

Error: forgot to halve

Two copies of the trapezium make a parallelogram

½ × 90 = 45 cm^2