

Answers

16.5 Problems in Context

1. (a) Area $A = 7.07 \text{ cm}^2$ (3 s.f.) $B = 13.5 \text{ cm}^2$ $C = 7.07 \text{ cm}^2$ (3 s.f.)
 (b) Total area = 27.7 cm^2 (3 s.f.)
2. (a) $A = 8 + 6.28 = 14.3 \text{ cm}^2$ (3 s.f.)
 (b) $A = 16 - 2 \times 3.14 = 9.72 \text{ cm}^2$ (3 s.f.)
 (c) $A = 6 + 7.1 = 13.1 \text{ cm}^2$ (3 s.f.)
3. $A = 18 + 9 + \frac{1}{4} \times \pi \times 3^2 = 34.1 \text{ m}^2$ (3 s.f.)
4. $A = 24 - 2 \times \frac{1}{2} \times \pi \times 2^2 = 11.4 \text{ cm}^2$ (3 s.f.)
5. Painted area = $2 \times (\pi \times 3.8^2 - \pi \times 1.2^2 - \pi \times 0.2^2) = 81.4 \text{ cm}^2$ (3 s.f.)
6. $A = 72 - 4 \times \frac{1}{4} \times \pi \times 3^2 = 43.7 \text{ cm}^2$ (3 s.f.) $P = 10 + 4 \times \frac{1}{4} \times 2 \times \pi \times 3 = 28.8 \text{ cm}$ (3 s.f.)
7. $A_1 = 1.27 \text{ m}^2$ (3 s.f.) $A_2 = 0.966 \text{ m}^2$ (3 s.f.) $A_3 = 1.23 \text{ m}^2$ (3 s.f.)
8. (a) 15.7 m (3 s.f.) (b) 942 m (3 s.f.)
9. (a) 265 times (3 s.f.) (b) 1380 times (3 s.f.)
10. (a) $A = 26.2 \text{ cm}^2$ (3 s.f.) $P = 20.5 \text{ cm}$ (3 s.f.)
 (b) $A = 9.24 \text{ m}^2$ (3 s.f.) $P = 12.8 \text{ m}$ (3 s.f.)

16.6 Volume and Surface Area of a Cylinder

1. $V = \pi \times 3.5^2 \times 4 = 154 \text{ cm}^3$ (3 s.f.)
2. (b) $V_A = 56.5 \text{ cm}^3$ (3 s.f.) $V_B = 50.3 \text{ cm}^3$ (3 s.f.) $V_C = 28.3 \text{ cm}^3$ (3 s.f.)
3. $A = 2 \times \pi \times 2.8 \times 7.2 + 2 \times \pi \times 2.8^2 \approx 176 \text{ cm}^2$ (3 s.f.)
4. (a) $V_A = \pi \times 2^2 \times 5 = 20 \times \pi \text{ cm}^3$ $V_B = \pi \times 4^2 \times 1.25 = 20 \times \pi \text{ cm}^3$
 (b) $A_A = 2 \times \pi \times 2 \times 5 + 2 \times \pi \times 2^2 = 88.0 \text{ cm}^2$ (3 s.f.)
 $A_B = 2 \times \pi \times 4 \times 1.25 + 2 \times \pi \times 4^2 = 132 \text{ cm}^2$ (3 s.f.)