

Solutions

Award method and answer marks as indicated; accept equivalent correct methods.

2.1

- $A = 9(7) - 3(2) = \mathbf{57 \text{ cm}^2}$.

2.2

- $A = s^2 - \pi r^2 = 36 - 4\pi \text{ cm}^2$; the full answer is $(36 - 4\pi) \text{ cm}^2$.

2.3

- $V = V_1 + V_2 = 36 + 54 = \mathbf{90 \text{ cm}^3}$.

2.4

- $V = (1/2)(4\pi r^3/3) = (1/2)(4\pi(6)^3/3) = \mathbf{144\pi \text{ cm}^3}$.

3.1

(a)

- $r = 8/2 = 4$; $A = 12(8) + \frac{1}{2}\pi(4)^2 = \mathbf{96 + 8\pi \text{ cm}^2}$.

(b)

- $P = 2(12) + 8 + \pi(4) = \mathbf{32 + 4\pi \text{ cm}}$.

(c)

- Two of the 12 faces are hidden: $S = (12 - 2)3^2 = \mathbf{90 \text{ cm}^2}$.

3.2

(a)

- Each volume is $V = lwh = 6(4)(3) = 72 \text{ cm}^3$.
- Combined $V_T = 2(72) = \mathbf{144 \text{ cm}^3}$.
- New dimensions are $\mathbf{12 \times 4 \times 3 \text{ cm}}$.

(b)

- Each surface is $S = 2(6 \times 4 + 6 \times 3 + 4 \times 3) = 108 \text{ cm}^2$.
- Exposed $S_T = 2(108) - 2(4 \times 3) = \mathbf{192 \text{ cm}^2}$.
- Check $S_T = 2(12 \times 4 + 12 \times 3 + 4 \times 3) = 192 \text{ cm}^2$.