

C: Surface ^{Area} of a Prism

- To find SA, (surface area), find the area of all sides and add them together.

$$A_{\square} = lw$$

$$A_{\square} = s^2$$

$$A_{\Delta} = \frac{1}{2}bh$$

$$= \frac{bh}{2}$$

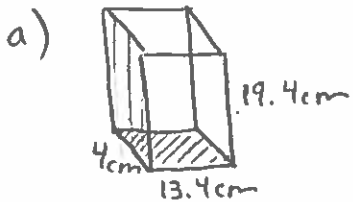
$$A_{\circ} = \pi r^2$$

↓
(3.14)

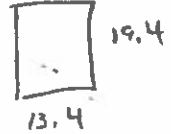
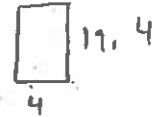
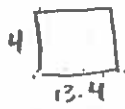
Area units: cm^2, m^2, mm^2 [units²]

Examples:

1. Determine the surface area to the nearest tenth.



Top/Bot
left/right
front/back



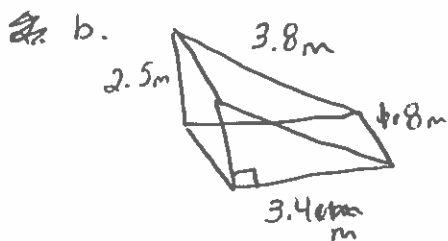
$$SA = 2A_T + 2A_L + 2A_F \checkmark$$

$$= 2lw + 2lw + 2lw \checkmark$$

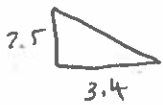
$$= 2(4 \times 13.4) + 2(19.4 \times 4) + 2(13.4 \times 19.4) \checkmark \quad \text{BEDMAS}$$

$$= 107.2 \text{ cm}^2 + 155.2 \text{ cm}^2 + 519.92 \text{ cm}^2 \checkmark$$

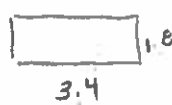
$$= 782.3 \text{ cm}^2 \checkmark$$



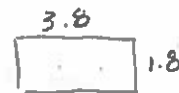
Front/Back



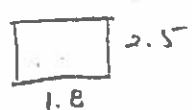
Bottom



Right



Left



$$SA = 2A_F + A_B + A_R + A_L \checkmark$$

$$= 2\left(\frac{bh}{2}\right) + lw + lw + lw \checkmark$$

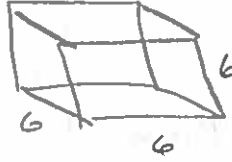
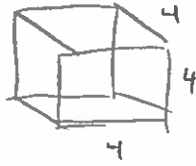
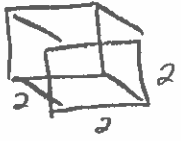
$$= (3.4 \times 2.5) + (3.4 \times 1.8) + (3.8 \times 1.8) + (1.8 \times 2.5) \checkmark$$

$$= 8.5 \text{ m}^2 + 6.12 \text{ m}^2 + 6.84 \text{ m}^2 + 4.5 \text{ m}^2 \checkmark$$

$$= 25.96 \text{ m}^2 \checkmark$$

$$= 26.0 \text{ m}^2 \checkmark$$

2. Sam is covering three ~~present~~^{blocks} with paper. The dimensions of the first is $2\text{ cm} \times 2\text{ cm} \times 2\text{ cm}$, the second $4\text{ cm} \times 4\text{ cm} \times 4\text{ cm}$; the 3rd $6\text{ cm} \times 6\text{ cm} \times 6\text{ cm}$. If he is not covering the tops how much paper does he need?



* Cubes.

$$\begin{aligned}
 SA_{\text{TOT}} &= SA_2 + SA_4 + SA_6 \\
 &= 6A_{\square} + 6A_{\square} + 6A_{\square} \\
 &= 6s^2 + 6s^2 + 6s^2 \\
 &= 6(2)^2 + 6(4)^2 + 6(6)^2 \\
 &= 6(4) + 6(16) + 6(36) \\
 &= 24\text{ cm}^2 + 96\text{ cm}^2 + 216\text{ cm}^2 \\
 &= 336\text{ cm}^2
 \end{aligned}$$

Assignment Pg. 180 # 3, 5, 6, 7, 8, 10, 11, 12