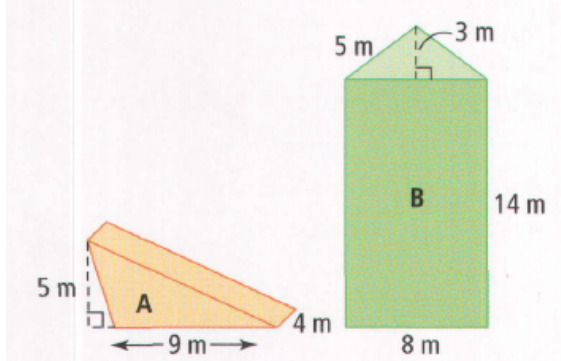


Surface Area or Volume of Triangular Prisms

15. a) Which triangular prism do you think has a greater volume?



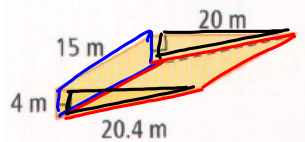
$$Vol_A = \frac{1}{2} \times 9 \times 5 \times 4 = 90 \text{ m}^3$$

$$Vol_B = \frac{1}{2} \times 8 \times 3 \times 14 = 168 \text{ m}^3$$

Example: Find Surface Area or Volume

The diagram shows the dimensions of a wave pool. It has been emptied so it can be painted.

- a) Determine the amount of paint needed.
The paint coverage rate is $10 \text{ m}^2/\text{L}$.
- b) How much water is needed to fill the pool?
Hint: $1000 \text{ L} = 1 \text{ m}^3$.



$$a) SA = 2\Delta_s + 2\text{Rects}$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 20 \times 4 = 40 \text{ m}^2 \\ \text{Area} &= 15 \times 4 = 60 \text{ m}^2 \\ \text{Area} &= 20.4 \times 15 = 306 \text{ m}^2 \end{aligned}$$

$$\Rightarrow 2(40) + 60 + 306 = 80 + 60 + 306 = 446 \text{ m}^2$$

$$\text{Paint needed} = \frac{446}{10} = 44.6 \text{ L}$$

$$b) \text{Volume} = \frac{1}{2} \times 20 \times 4 \times 15 = 600 \text{ m}^3$$

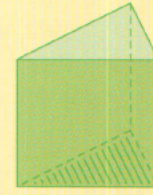
Fill \Rightarrow Volume

$$1000 \text{ L} = 1 \text{ m}^3$$

$$\Rightarrow \text{water needed} = 600 \times 1000 = 600,000 \text{ L}$$

Key Ideas

- The surface area of a triangular prism is the sum of the areas of its faces.
- Volume of a triangular prism = area of base \times height of prism



Page 266 #s 1 - 9