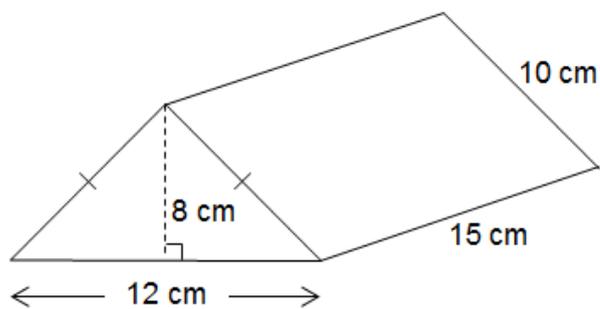


## Surface Area and Volume Worksheet

1. Find the volume of a cube with side length 6 cm.

$$\begin{aligned} V \text{ of cube} &= s^3 \\ &= 6^3 \\ &= 216\text{cm}^3 \end{aligned}$$

2. Find the surface area of this triangular prism.



$$SA = 2 \times A \text{ of Base} + \text{Perimeter of base} \times h$$

$$= 2 \times 180 + 54$$

$$A_1 = 12 \times 10 \times 15$$

$$= 300$$

$$A_2 = 12 \times 15$$

$$= 180$$

$$A_3 = 2 \left( \frac{1}{2} bh \right)$$

$$= 2 \left( \frac{1}{2} \times 12 \times 8 \right)$$

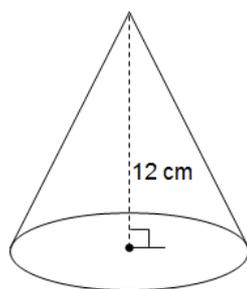
$$= 96$$

$$SA = 300 + 180 + 96$$

$$= 576\text{cm}^2$$

Successfully calculated the volume of the cube and the surface area of the triangular prism

3. Find the volume of this cone to the nearest  $\text{cm}^3$ .

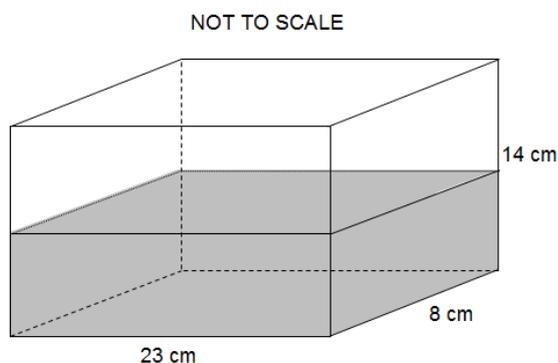


Diameter = 7 cm

$$\begin{aligned} \text{v of cone} &= \frac{1}{3} \pi r^2 h \\ &= \frac{1}{3} \pi (3.5)^2 \times 12 \\ &= 154 \text{ cm}^3 \end{aligned}$$

Correctly calculated the volume of the cone to the nearest  $\text{cm}^3$

- 4.



1000 mL of water is poured into the container shown in the diagram above.

- (a) What is the volume of the container?

$$\begin{aligned} \text{v of container} &= l \times w \times h \\ &= 23 \times 14 \times 8 \\ &= 2576 \text{ cm}^3 \end{aligned}$$

- (b) What volume of water is required to fill the container?

$$\begin{aligned} 1 \text{ cm}^3 &= 1000 \text{ mL} \\ \text{Water required to fill} &= 2576 \times 1000 \text{ mL} \\ &= 2576000 \text{ mL} \end{aligned}$$

$$\underline{\underline{1 \text{ cm}^3 = 1 \text{ mL}}}$$

Correctly calculated the volume of the container. Recognised the need to convert cubic centimetres to millilitres to determine the volume of water required to fill the container

### Grade Commentary

Chris has demonstrated a sound knowledge and understanding of surface area and volume. A high degree of accuracy was evident in solving familiar multi-step problems using the appropriate formulae. This work sample demonstrated characteristics of work typically produced by a student performing at a grade C6 level.