

volume

- the amount of space a 3-dimensional object occupies
- measured in cubic units (e.g. mm³, cm³, m³)

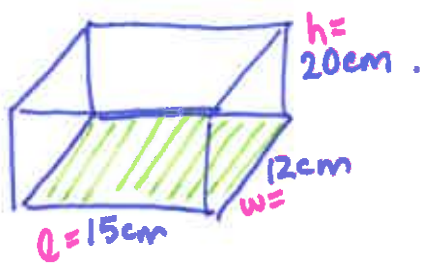
To find the volume of a **prism** or **cylinder**, you can either:

- use the appropriate formula from your formula sheet
- or

• use the general formula: $V = \text{area of base} \times \text{height}$

Volume of a Rectangular Prism

A rectangular prism has a base that is 15 cm by 12 cm and a height of 20 cm. Draw a diagram and calculate the volume of the prism. Round your answer to the nearest hundredth.



Area of base \square

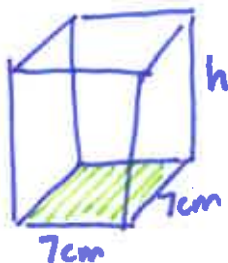
height of prism

$$V = l \times w \times h$$

$$= 15(12)(20)$$

$$= 3600 \text{ cm}^3$$

A rectangular prism has a square base with side lengths of 7 cm. Its volume is 392 cm³. Calculate the height of the prism.



Area of base = s^2
 $= 7^2$
 $= 49 \text{ cm}^2$

height of prism

$$V = \text{area of base} \times \text{height}$$

$$392 \div 49 = 49 \times h$$

$$8 = h$$

$$8 \text{ cm}$$

Volume of a Triangular Prism

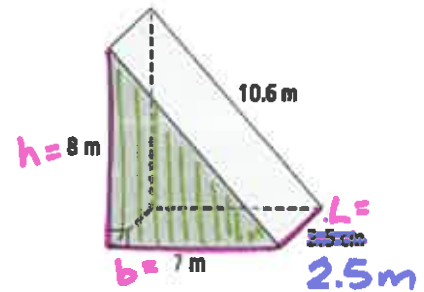
Calculate the volume of the triangular prism. Round your answer to the nearest hundredth.

area of base \triangle \rightarrow $V = \frac{bh}{2} \times L$ \leftarrow height of prism

$$= \frac{7(8)}{2} \times 2.5$$

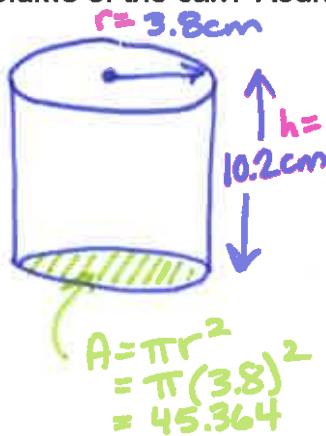
$$= 28 \times 2.5$$

$$= \boxed{70 \text{ m}^3}$$



Volume of a Cylinder

A can of tomato sauce has a radius of 3.8 cm and a height of 10.2 cm. What is the volume of the can? Round your answer to the nearest hundredth.



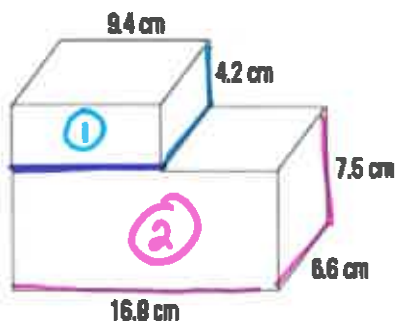
area of base \circ \rightarrow $V = \pi r^2 h$ \leftarrow height of cylinder

$$= \pi (3.8)^2 (10.2)$$

$$= 462.7188\dots$$

$$= \boxed{462.72 \text{ cm}^3}$$

Volume of Composite Objects



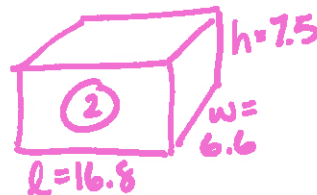
Calculate the volume of the composite prism. Round your answer to the nearest hundredth.



$$V = lwh$$

$$= 9.4(6.6)(4.2)$$

$$= 260.568 \text{ cm}^3$$



$$V = 16.8(6.6)(7.5)$$

$$= 831.6 \text{ cm}^3$$

$$\text{Total Volume} = 260.568 + 831.6$$

$$= 1092.168$$

$$= \boxed{1092.17 \text{ cm}^3}$$