

MATC9 Ch3.1 Key Concepts 5 Volume of Rectangular Prisms and Cylinders Worked Example

Example: a) A box of cat food measures 30 cm by 15 cm by 40 cm. Find the volume.

b) A cylindrical glass has a radius of 5 cm and a height of 10 cm. Find the volume.

Solution: a) The volume of a box is calculated using the formula $V = l \times w \times h$.

$$\begin{aligned} V &= 30 \times 15 \times 40 \\ &= 18\,000 \text{ cm}^3 \end{aligned}$$

The volume of the box is 18 000 cm³.

b) The volume of a cylinder is calculated using the formula $V = \pi r^2 h$.

$$\begin{aligned} V &= \pi \times 5^2 \times 10 \\ &= 785.4 \text{ cm}^3 \end{aligned}$$

The volume of the glass is 785.4 cm³.

Practice:

1. A luggage cart at an airport is a box which measures 4 m by 2 m by 3 m. What is its volume?

2. A town water tank is a cylinder with a radius 10 m and a height of 20 m. What volume of water does it hold?

Answers: 1. 24 m³ 2. 6283 m³