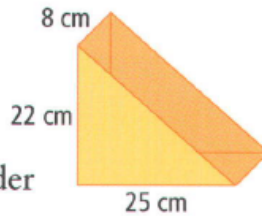


Volume of a Triangular Prism

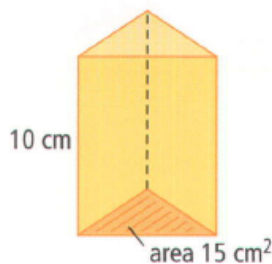
14. A company specializes in producing magazine holders for business offices, schools, and homes. Each magazine holder is made out of cardboard.



- What area of cardboard is used to make one magazine holder?
- The company makes 2000 of these holders each day. How many square metres of cardboard do they need each day?

Example 1: Find Volume

Find the volume of the triangular prism.

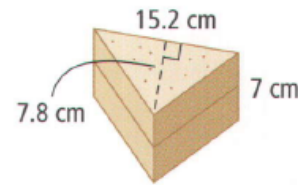


$$\begin{aligned}
 \text{Vol} &= \text{Area of base} \times \text{height} \\
 &= 15 \times 10 \\
 &= 150 \text{ cm}^3
 \end{aligned}$$

Example 2: Solve a Volume Problem

The school cafeteria offers sandwiches for lunch. Each sandwich is diagonally sliced into triangular halves and placed into a plastic box.

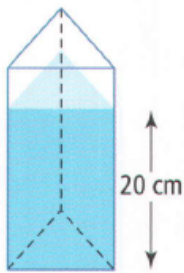
Calculate the volume of each sandwich box, to the nearest cubic centimetre.



$$\begin{aligned}
 \text{Vol} &= \text{Area of base} \times \text{height} \\
 &= \left(\frac{1}{2} \times 15.2 \times 7.8\right) \times 7 \\
 &= 414.96 \\
 &= 415 \text{ cm}^3
 \end{aligned}$$

Example 3: Use Volume Concepts

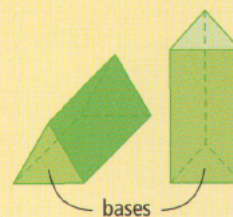
When Trisha pours 1 L of water into a triangular vase, the depth of water is 20 cm. What is the area of the triangular base of the vase? Hint: $1 \text{ cm}^3 = 1 \text{ mL}$.



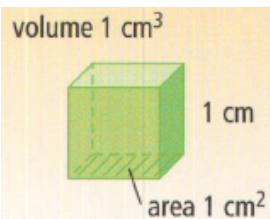
$$\begin{aligned}
 1 \text{ litre} &= 1000 \text{ cm}^3 \\
 \text{Vol} &= \text{Area of base} \times \text{height} \\
 \frac{1000}{20} &= \frac{\text{Area} \times 20}{20} \\
 50 \text{ cm}^2 &= \text{Area of base}
 \end{aligned}$$

Key Ideas

- The bases of a triangular prism are the surfaces that are triangles.
- The volume of a triangular prism can be found by multiplying the area of one triangular base by the height of the prism.
- The formula for the volume of a triangular prism is
Volume = area of triangular base \times height of prism



Volume is a measure of the amount of space occupied. It is a three-dimensional concept and so its units are cubic units.



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