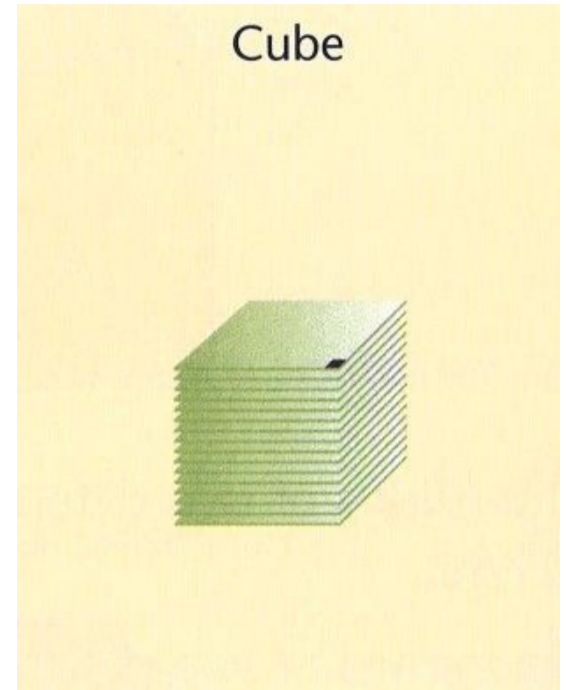
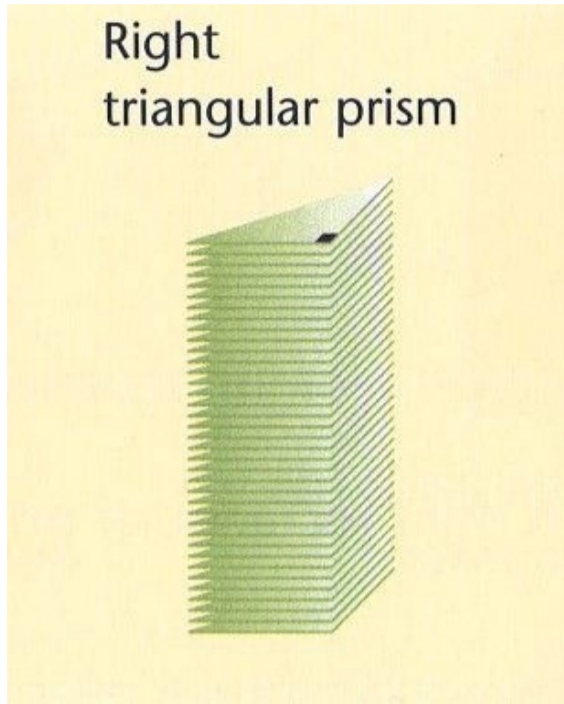
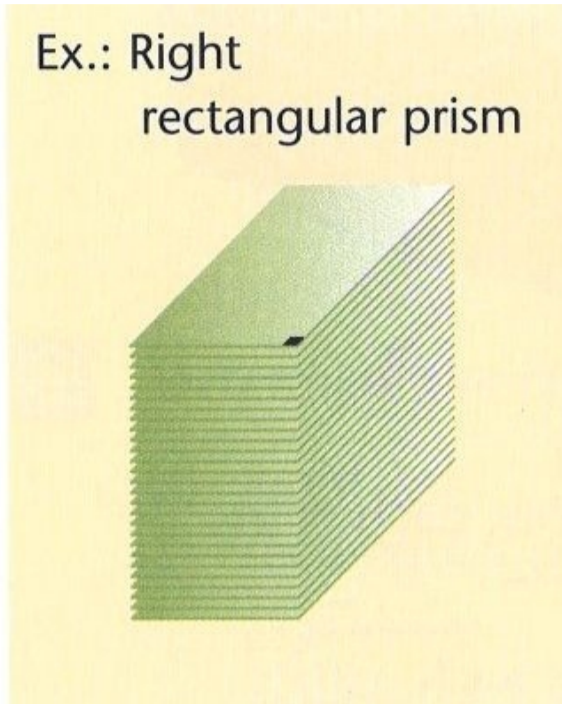


Vision 5.2

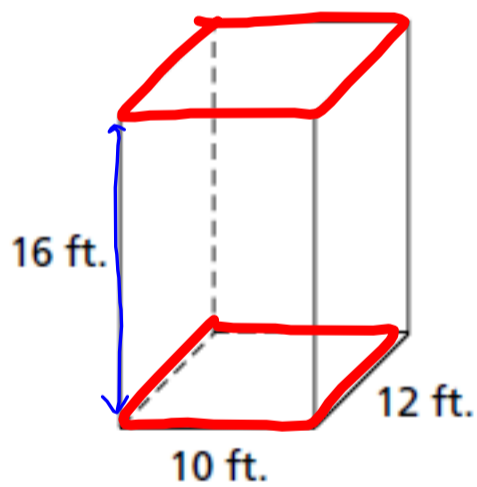
Volume of a Right Prism

The volume (V) of a right prism can be calculated using the formula:

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



Example: Calculate the volume of the rectangular prism.



$$V_{\text{prism}} = (\text{area base}) \times (\text{height})$$

$$V_{\text{prism}} = (\text{base} \times \text{height}) \times (\text{height of prism})$$

$$V_{\text{prism}} = (10 \text{ ft} \times 12 \text{ ft}) \times (16 \text{ ft})$$

$$V_{\text{prism}} = 1920 \text{ ft}^3$$

Volume of a Right Cylinder

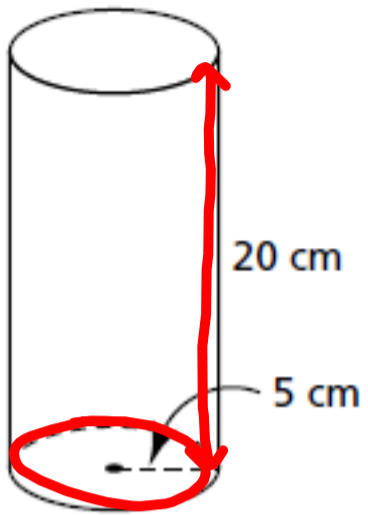
The volume (V) of a right cylinder can be calculated using the formula:

$$V_{\text{cylinder}} = (\text{area of a base}) \times (\text{height})$$

$$V_{\text{cylinder}} = \pi r^2 h$$

$$V_{\text{cylinder}} = \pi r^2 h$$

Example: Calculate the volume of the cylinder.



$$V_{\text{cylinder}} = (\text{area base}) \times (\text{height})$$

$$V_{\text{cylinder}} = \pi r^2 h$$

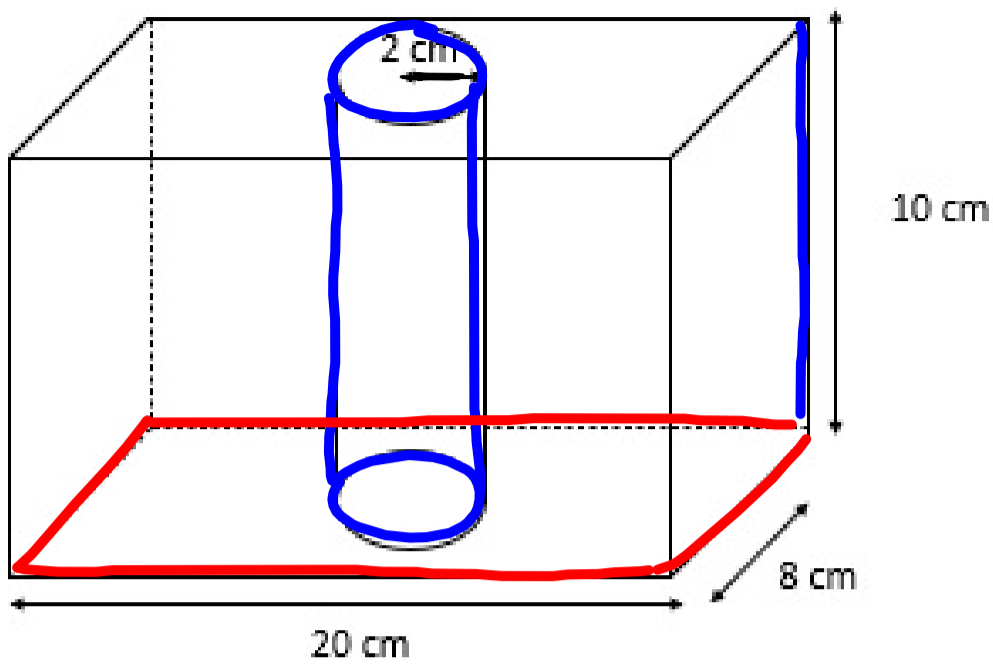
$$= \pi (5\text{cm})^2 (20\text{cm})$$

$$= 15708\text{cm}^3$$

Right circular cylinder



Example: Calculate the volume of the rectangular prism with a cylindrical section removed.



① Volume of cylinder

② Volume of prism

③ Volume prism - Volume cylinder

$$\begin{aligned} \textcircled{1} \quad V_{\text{cylinder}} &= (\text{area base}) \times (\text{height}) \\ &= \pi r^2 h \\ &= \pi (2\text{cm})^2 (10\text{cm}) \\ &= 125.7\text{cm}^3 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad V_{\text{prism}} &= (\text{area base}) \times (\text{height}) \\ &= (20\text{cm} \times 8\text{cm}) (10\text{cm}) \\ &= 1600\text{cm}^3 \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad \text{Total volume} &= V_{\text{prism}} - V_{\text{cylinder}} \\ &= 1600\text{cm}^3 - 125.7\text{cm}^3 \\ &= 1474.3\text{cm}^3 \end{aligned}$$