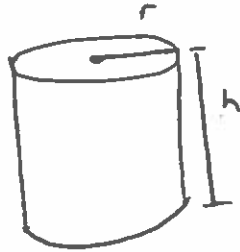


D: Volume of a Cylinder

⇒ Volume of Prisms

$$V = A_{\text{base}} \times h$$

A cylinder is a prism with a circular base.



$$V = A_{\text{base}} \times h \\ = \pi r^2 \times h$$

Examples:

1. Determine the volume of each cylinder.



$$V = A_{\text{base}} \times h \\ = \pi r^2 \times h \\ = (3.14)(7)^2(25) \\ = (3.14)(49)(25) \\ = 3846.5 \text{ cm}^3$$



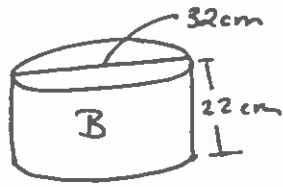
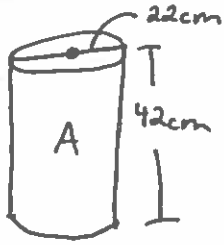
$$V = A_{\text{base}} \times h \\ = \pi r^2 \times h \\ = (3.14)(10)^2(9.5) \\ = (3.14)(100)(9.5) \\ = 2983 \text{ cm}^3$$
$$r = \frac{d}{2} \\ = \frac{20}{2} \\ = 10 \text{ cm}$$

2. The volume of a cylinder is 152 cm^3 and the area of its base is 50 cm^2 . What is its height?

$$V = A_{\text{base}} \times h \\ 152 = (50)(h)$$

$$\frac{152}{50} = \frac{50h}{50} \\ \boxed{3.04 \text{ cm} = h}$$

3. Which container will hold more paint? ~~is~~



$$V_A = A_b \times h$$

$$= \pi r^2 \times h$$

$$r = \frac{22}{2} = 11 \text{ cm}$$

$$= (3.14 \times 11)^2 (42)$$

$$= 3.14 (121) (42)$$

$$= 15957.8 \text{ cm}^3$$

$$V_B = A_b \times h$$

$$= \pi r^2 \times h$$

$$r = \frac{32}{2} = 16$$

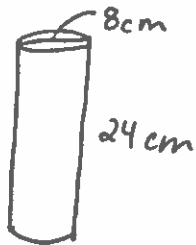
$$= (3.14 \times 16)^2 (22)$$

$$= (3.14) (256) (22)$$

$$= 17684.48 \text{ cm}^3$$

Container B will hold more paint.

4. A company buys 40 tubes as shown in order to fill them with small candies. What volume of candy is required to fill them?



$$V = A_b \times h$$

$$= \pi r^2 \times h$$

$$r = \frac{8}{2} = 4$$

$$= (3.14 \times 4)^2 (24)$$

$$= (3.14) (16) (24)$$

$$= 1205.76 \text{ cm}^3 \text{ for 1 container.}$$

$$\Rightarrow (1205.76 \times 40) = \boxed{48230.4 \text{ cm}^3}$$

Assignment Pg. 265 # 4-7(a-c), 8-14