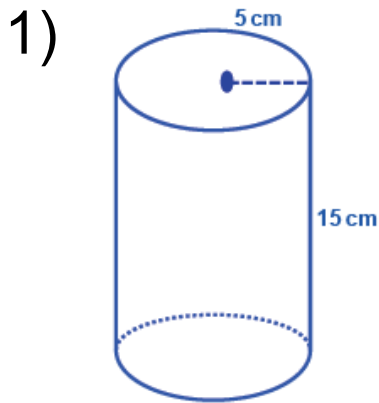


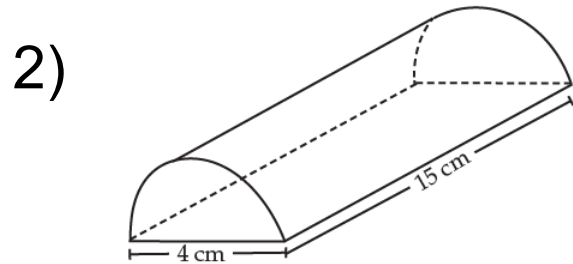
## Volume of Cylinders

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

Find the volume of the following solids:



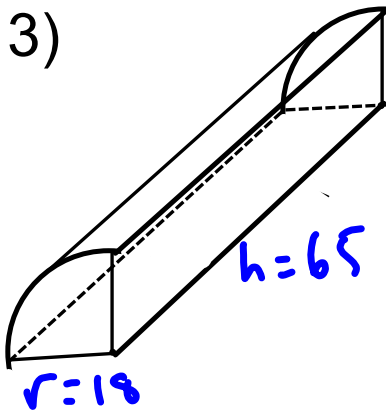
$$\begin{aligned} V &= \pi r^2 h \\ &= \pi (5)^2 (15) \\ &= 1178.1 \text{ cm}^3 \end{aligned}$$



$$r = 2$$

$$\begin{aligned} V &= \frac{\pi (2)^2 (15)}{2} \\ &= 94.25 \text{ cm}^3 \end{aligned}$$

3)

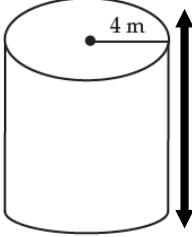


This 1/4 cylinder has a radius of 18cm and a height of 65cm....What is the volume?

$$\begin{aligned} V &= \frac{(\pi r^2 h)}{4} \\ &= \frac{\pi (18)^2 (65)}{4} \\ &= 16540.49 \text{ cm}^3 \end{aligned}$$

Volume Backwards

Find the missing side measure:

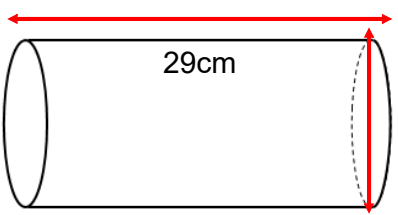
1)  VOL = 653.45127 m<sup>3</sup>

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

$$653.45127 = \pi (4)^2 h$$

$$\frac{653.45127}{50.27} = \frac{50.27 h}{50.27}$$

$$h = 13 \text{ m}$$

2)  Volume = 17,864 cm<sup>3</sup>

\*\*Diagram is not to scale.

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

$$17,864 = \pi r^2 (29)$$

$$\frac{17,864}{91.11} = \frac{r^2 (91.11)}{91.11}$$

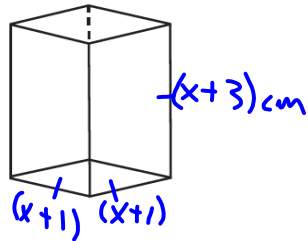
$$r^2 = 196.07$$

$$r = \sqrt{196.07}$$

$$r = 14 \text{ cm}$$

$$\text{Diameter} = 14 \times 2 = 28 \text{ cm}$$

Find the volume of this prism:



$$V = L \cdot w \cdot h$$

$$V = Ab \cdot h$$

$$\textcircled{1} A_{\text{base}} = (x+1)(x+1) \quad \underline{\text{FOIL}}$$

$$= x^2 + x + x + 1$$

$$= x^2 + 2x + 1 \text{ cm}^2$$

$$\textcircled{2} V = (x+3)(x^2 + 2x + 1)$$

$$= x^3 + 2x^2 + x + 3x^2 + 6x + 3$$

now simplify

$$= x^3 + 5x^2 + 7x + 3 \text{ cm}^3$$

$\textcircled{2}$  Find the volume of a rectangular based prism with a base of  $(x+1)$ cm and  $(x+2)$ cm and a height of  $(x+4)$ cm.

$$Ab = (x+1)(x+2)$$

$$= x^2 + 2x + x + 2$$

$$= x^2 + 3x + 2 \text{ cm}^2$$

$$V = (x+4)(x^2 + 3x + 2)$$

$$= x^3 + 3x^2 + 2x + 4x^2 + 12x + 8$$

$$= x^3 + 7x^2 + 14x + 8 \text{ cm}^3$$