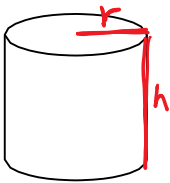


Date: _____

7.3 Notes: Volume of a Cylinder

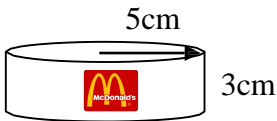
The volume of a cylinder can be found using a modified version of the volume formula:



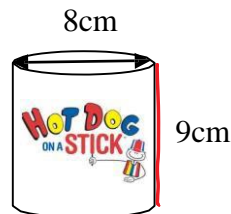
Volume = (Area of the circle) x height

$$V = (\pi r^2) \times h$$
$$= (\pi \times r \times r) \times h$$

Find the volume of each cylinder:



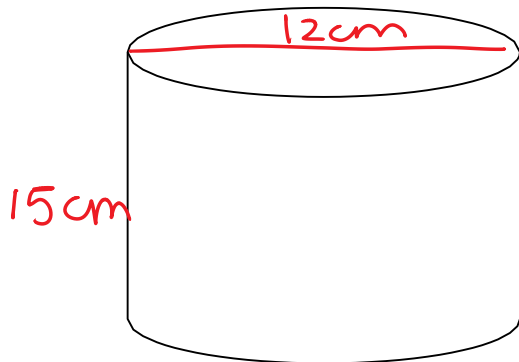
$$V = (\pi r^2) \times h$$
$$= (\pi \times 5^2) \times 3$$
$$= (\pi \times 5 \times 5) \times 3$$
$$= (3.14 \times 5 \times 5) \times 3$$
$$= 78.5 \times 3$$
$$= 235.5 \text{ cm}^3$$



$$r = d \div 2$$
$$r = 8 \div 2$$
$$= 4 \text{ cm}$$

$$V = (\pi r^2) \times h$$
$$= \pi 4^2 \times 9$$
$$= (3.14 \times 4 \times 4) \times 9$$
$$= 50.24 \times 9$$
$$= 452.16 \text{ cm}^3$$

Ricky buys a can of Motor Oil at the track. It is 15cm high and has a diameter of 12 cm. How much Motor Oil could fit in the can?



$$\begin{aligned} r &= d \div 2 \\ &= 12 \div 2 \\ &= 6 \text{ cm} \end{aligned}$$

$$\begin{aligned} V &= \pi \times r^2 \times h \\ &= \pi \times 6^2 \times 15 \\ &= 1696.5 \text{ cm}^3 \end{aligned}$$

Stevie buys Axe in a cylindrical container. It has a 3cm radius and is 8cm tall. However, it is only $\frac{5}{8}$ full. How much Axe is really in the container?



Step 1: Find the vol. of container

$$\begin{aligned} V &= \pi \times r^2 \times h \\ &= (3.14 \times 3 \times 3) \times 8 \\ &= 226.2 \text{ cm}^3 \end{aligned}$$

Step 2: $\frac{5}{8}$ of container

$$\begin{aligned} \frac{5}{8} \times 226.2 &= (5 \div 8) \times 226.2 \\ &= 141.4 \text{ cm}^3 \end{aligned}$$

Johnny wants to put 300 cm^3 of Anti-Fungal cream in a cylindrical container. He wants the base to have a radius of 4 cm. How tall would the container have to be?



$$V = 300 \text{ cm}^3$$

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

$$300 = \pi 4^2 \times h$$

$$300 = 50.24 \times h$$

$$\frac{300}{50.24} = \frac{50.24 \times h}{50.24}$$

$$5.97... = h$$

$$h = 5.97 \text{ cm}$$

5.97 cm tall.