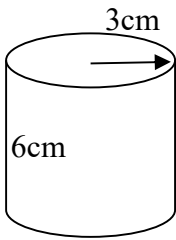


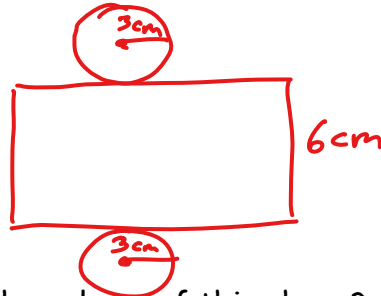
Date: _____

KEY

7.3 Notes: Volume of a Cylinder



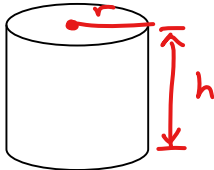
Corey Charlie is trying to find the volume of this can of Comet™ that he bought at Costco. He doesn't know the area of the base, but he remembers that he can draw a net of this shape. What would the net look like?



How would knowing the net help find the volume of this shape?

We can see that the bases are circles.

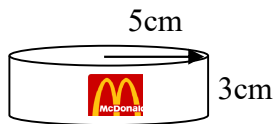
The volume of a cylinder can be found using a modified version of the volume formula:



Volume = (Area of the circle) x height

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

Find the volume of each cylinder:

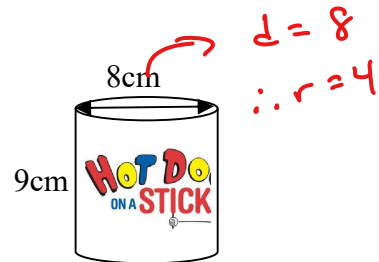


$$V = A_b h$$

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

$$V = (3.14)(5)^2(3)$$

$$V = 235.5 \text{ cm}^3$$



$d = 8$
 $\therefore r = 4$

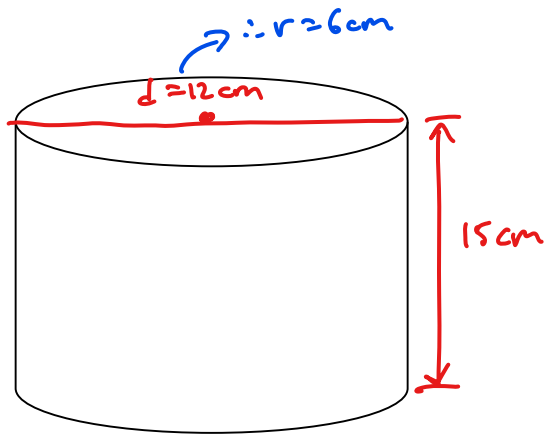
$$V = A_b h$$

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

$$V = (3.14)(4)^2(9)$$

$$V = 452.16 \text{ cm}^3$$

Ricky-Bobby 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?



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

$$V = (3.14)(6)^2(15)$$

$$V = 1695.6 \text{ cm}^3$$

Stevie-Jimmy 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?



$$V_{\text{axe}} = \frac{5}{8} \text{ of } V_c$$

$$V = \frac{5}{8} \cdot \pi r_c^2 h$$

$$V = \frac{5}{8} \cdot (3.14) \cdot (3)^2 \cdot (8)$$

$$V = 141.3 \text{ cm}^3$$

DIFFERENT METHOD:

IF IT'S $\frac{5}{8}$ FULL, THEN $h_{\text{axe}} = \frac{5}{8} h_c$

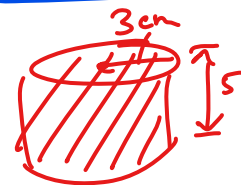
$$= \frac{5}{8}(8)$$

$$h = 5 \text{ cm}$$

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

$$= (3.14)(3)^2(5)$$

$$V = 141.3 \text{ cm}^3$$



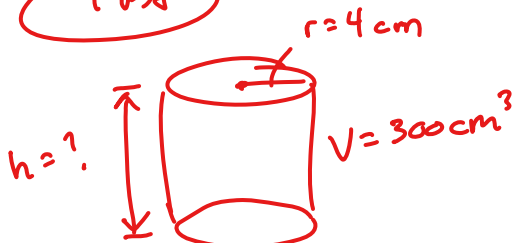
Johnny Johnny wants to put 300 cm³ of Anti-Fungal cream in a cylindrical container. He wants the base to have a radius of 4 cm. How tall would the container have to be?

$h = ?$

⊛ USE THE METHOD:

FORMULA
PLUG-IN
ANSWER

FPA



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

(P) $300 = (3.14)(4)^2 h$

(A) $\frac{300}{50.24} = \frac{50.24 h}{50.24}$

5.97... = h

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

OR

$$h = 6.0 \text{ cm}$$