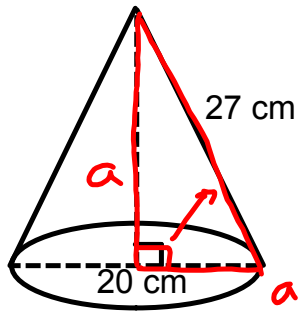


Warm Up:

Determine the volume of the following.

a)



$$a^2 + b^2 = c^2$$

$$a^2 + 10^2 = 27^2$$

$$a^2 + 100 = 729$$

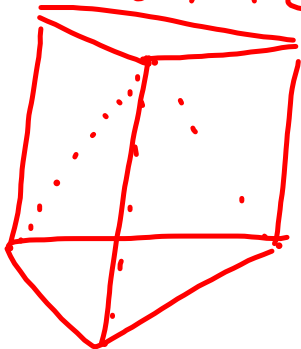
$$a^2 = 729 - 100$$

$$\sqrt{a^2} = \sqrt{629}$$

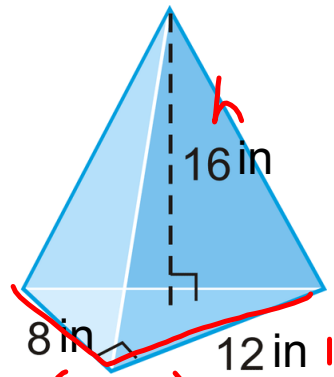
$$V = \frac{\pi r^2 \times h}{3}$$

$$V = \frac{3.14(10^2)(25.1)}{3} \quad a = 25.1$$

$$V = 2627.1 \text{ cm}^3$$



b)



$$V = \frac{\left(\frac{b \times l}{2}\right) \times h}{3}$$

$$V = \frac{\left(\frac{8 \times 12}{2}\right) \times 16}{3}$$

$$V = \frac{48 \times 16}{3}$$

$$V = \frac{768}{3}$$

$$V = 256 \text{ in}^3$$

Volume of a Sphere

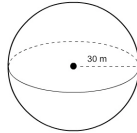
Youtube Video Demonstrating where the Volume of Sphere formula comes from!

A sphere can be filled by 2 cones of the same radius and same height.

Volume of a Sphere = $\frac{4\pi r^3}{3}$

Find the volume of the following solids.

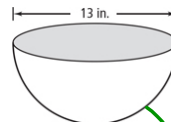
1.



$$V = \frac{4(3.14)(30^3)}{3}$$

$$V = 113040 \text{ m}^3$$

2.



$$V = \frac{4(3.14)(6.5^3)}{3}$$

$$V = 1149.8 \div 2$$

$$V = 574.9 \text{ in}^3$$

3. A large propane tank is shown in the diagram. If the tank has a diameter of 40 inches and a length (from end to end) of 16 feet, determine the volume of the tank in gallons.

Recall: 1 foot = 12 inches

Also note: 1 cubic inch = 0.004329 US gal



$$V \text{ of cylinder} = \pi r^2 \times h$$

$$V = 3.14(20^2) \times 198.72$$

$$V = 190912$$

$$V \text{ of sphere} = \frac{4\pi r^3}{3}$$

$$V = \frac{4(3.14)(20^3)}{3}$$

$$V = \frac{12.56(8000)}{3}$$

$$V = 33493.3$$

$$\text{Total volume} = 190912 + 33493.3$$

$$= 224403.3 \text{ in}^3$$

$$\text{in}^3 \rightarrow \text{gal} = 224403.3 \times 0.004329$$

$$= 971.5$$

\therefore the tank holds 971.5 US gallons