Do-now:

Take out your reference sheet from yesterday and use it to answer the question below.

A cone has a height of 10 inches and the diameter of the base is 12 inches. What is the volume of the cone?

$r = 6$

$$V = \frac{1}{3} B h$$

$$V = \frac{1}{3} \pi r^2 h$$

$$V = \frac{1}{3} \pi \cdot 6^2 \cdot 10$$

$$V = \frac{1}{3} \pi \cdot 360$$

$$V = 120 \pi \text{ in.}^3$$

Note about working with π

$\pi \neq 3.14$ $\pi \approx 3.14$

EXACT ANSWER   **vs.**   **ROUNDING**

$120\pi \longrightarrow 376.9911184\ldots$

The volume of a cylinder is 925 cubic inches. If the height of the cylinder is 12 inches, what is the length of the radius? Round your answer to the nearest tenth of an inch.

$$V = Bh$$

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

$$\frac{925}{12} = \frac{\pi \cdot r^2 \cdot \cancel{12}}{\cancel{12}}$$

$$\frac{77.08\ldots}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{24.536\ldots} = \sqrt{r^2}$$

$$4.953\ldots = r$$

$$\boxed{r = 5}$$

The volume of a sphere is 972π cubic inches.
What is the length of the diameter of the sphere?

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

$$\frac{972\pi}{\pi} = \frac{\frac{4}{3}\pi r^3}{\pi}$$

$$\boxed{\text{Diameter} = 18}$$

$$\frac{972}{\left(\frac{4}{3}\right)} = \frac{\frac{4}{3}r^3}{\frac{4}{3}}$$

$$\sqrt[3]{729} = \sqrt[3]{r^3}$$

$$9 = r$$