


### Warm Up

1. Find the area of the circle with radius = 17 m.



Handwritten calculations for the area of a circle with radius 17 m:

$$\pi r^2$$

$$\pi \cdot 17^2 = 289\pi \text{ m}^2$$

2. Find the area of the circle with diameter = 7.8 in.



Handwritten calculations for the area of a circle with diameter 7.8 in (radius 3.9):

$$\pi r^2$$

$$\pi \cdot 3.9^2$$

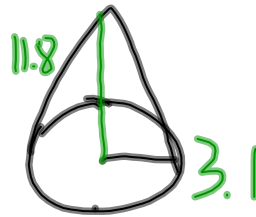
3. Find the volume of the cone with radius 3.1 cm and height 11.8 cm.

Handwritten calculations for the volume of a cone:

$$A = \pi r^2$$

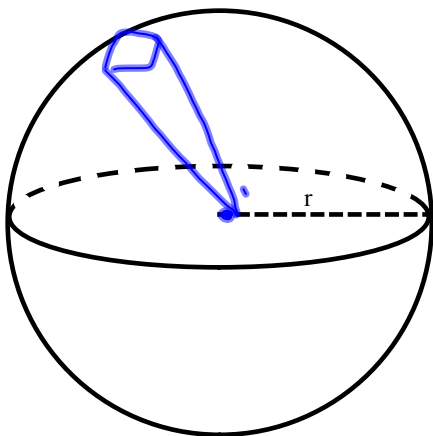
$$A = \pi \cdot 3.1^2$$

$$V = \frac{\pi \cdot 3.1^2 \cdot 11.8}{3}$$



### 12-6

### SPHERES



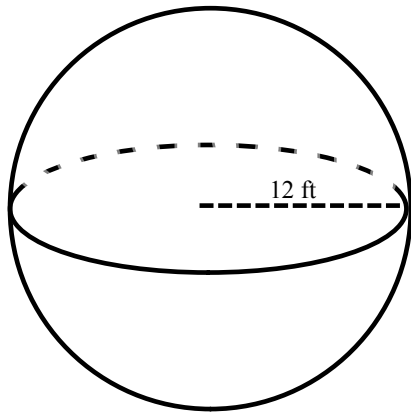
Surface Area -

$$4\pi r^2$$

Volume -

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

Ex 1 Find the surface area and volume of the sphere.



$$S.A. = 4\pi r^2$$

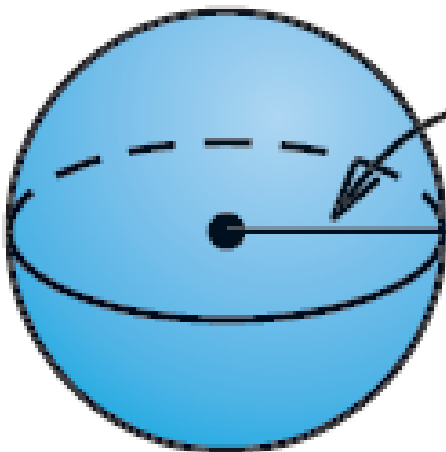
$$4 \cdot 12^2 \pi \approx 1809 \text{ ft}^2$$

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

$$\frac{4}{3} \cdot 12^3 \pi$$

$$7238.2 \text{ ft}^3$$

Ex 2 Find the surface area and volume of the sphere.



$$S.A. = 4 \cdot 8^2 \cdot \pi$$

$$\approx 804 \text{ in}^2$$

$$V = \frac{4}{3} \cdot 8^3 \cdot \pi$$

$$2144.7 \text{ in}^3$$

Ex 3 If the surface area of a sphere is  $40.96\pi$  in<sup>2</sup>,  
find the diameter.

$$S.A. = 4\pi r^2$$

$$40.96\pi = 4\pi r^2$$

$$\sqrt{10.24} = \sqrt{r^2}$$

$$3.2 = r$$

$$d = 6.4 \text{ in}$$

Ex 4 If the volume of a sphere is 1800 in<sup>3</sup>,  
find the radius.

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

$$\frac{1800}{\left(\frac{4}{3}\pi\right)} = \frac{\frac{4}{3}\pi r^3}{\frac{4}{3}\pi}$$

$$\sqrt[3]{429.7} \approx r \quad r \approx 7.54 \text{ in}$$

Ex 5 Find the surface area and the volume of the ice cream and the cone.

radius is 4.9 cm

height of the cone is 12.6 cm



$$\frac{1}{3} \cdot C \cdot h$$

$$SA = 4\pi r^2$$

$$4\pi \cdot 4.9^2$$

$$301.7150.8$$

$$\pi r^2 = 75.4$$

$$\pi \cdot 4.9^2 = 75.4$$

$$226.2$$