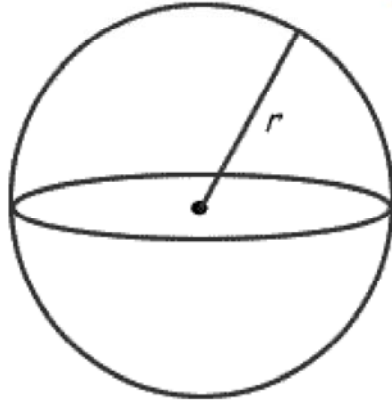


Sphere

Surface
Area

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



Volume

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

Sphere Examples

1. The regulation soccer ball has 8 inch diameter (size 5). Find the volume and surface area.

$$r = 4''$$

$$V = \frac{4}{3}\pi r^3 = \frac{4}{3}\pi(4)^3 \approx 268.1 \text{ in}^3$$

$$SA = 4\pi r^2 = 4\pi(4)^2 \approx 201.1 \text{ in}^2$$



2. Find the volume and surface area of a sphere with circumference of 20π in.

$$C = \pi d$$

$$\frac{20\pi}{\pi} = \frac{\pi d}{\pi}$$

$$20 = d$$

$$r = 10 \text{ in}$$

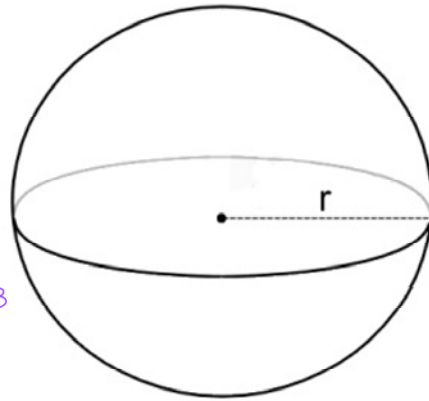
$$V = \frac{4}{3}\pi r^3$$

$$V = \frac{4}{3}\pi(10)^3$$

$$V \approx 4188.8 \text{ in}^3$$

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

$$= 4\pi(10)^2 \approx 1256.6 \text{ in}^2$$



3. Find the volume of a sphere with a surface area of $144\pi \text{ cm}^2$.

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

$$\frac{144\pi}{4\pi} = \frac{4\pi r^2}{4\pi}$$

$$36 = r^2$$

$$6 = r$$

$$V = \frac{4}{3}\pi r^3 = \frac{4}{3}\pi(6)^3$$

$$V \approx 904.8 \text{ cm}^3$$

$$SA = 4\pi r^2 = 4\pi(6)^2 \approx 452.4 \text{ cm}^2$$

