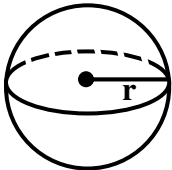


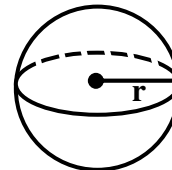
Section 11.6 – Surface Area and Volume of a Sphere

**Surface Area of a Sphere**

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


A diagram of a sphere with a center point. A horizontal line segment from the center to the right edge of the sphere is labeled 'r'. A dashed line represents the back half of the sphere's equator.

**Volume of a Sphere**

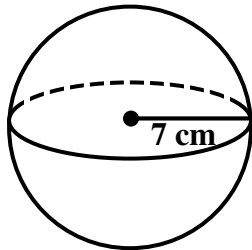
$$V = \frac{4}{3}\pi r^3$$


A diagram of a sphere with a center point. A horizontal line segment from the center to the right edge of the sphere is labeled 'r'. A dashed line represents the back half of the sphere's equator.

**Note:** We will not derive the surface area and volume formulas for a sphere because you must know calculus.

**Ex 1:**

Find the surface area and the volume of the sphere. Leave answer in terms of  $\pi$ .



**Ex 2:**

a) Find the radius of a sphere given the surface area.

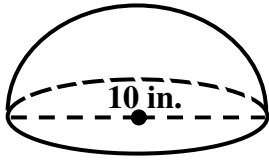
$$S = 100\pi \text{ in.}^2$$

b) Find the radius of a sphere given the volume.

$$V = 36\pi \text{ ft}^3$$

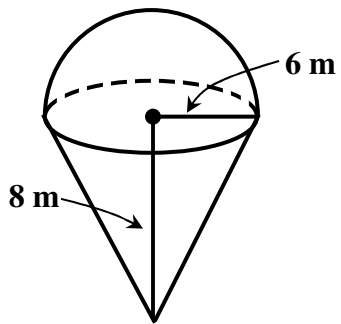
**Ex 3:**

Find the surface area and the volume of the solid. Leave answer in terms of  $\pi$ .



**Ex 4:**

Find the surface area and the volume of the solid. Leave answer in terms of  $\pi$ .



**Ex 5:**

Find the volume of the cylinder not occupied by the sphere. Leave answer in terms of  $\pi$ .

