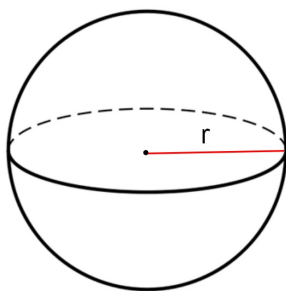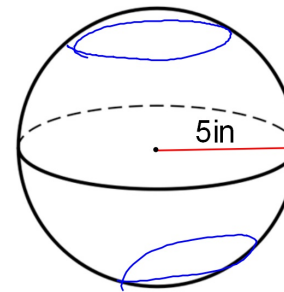**Section 11-6:**   **Spheres**

A circle is the set of all points in a plane equidistant from a given point called the center.

A sphere is the set of all points in space equidistant from a given point called the center.
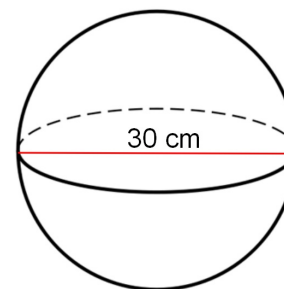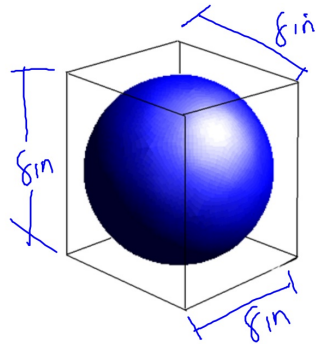

What is the circumference of this sphere?

5in

$2\pi r = 10 \pi$ in

---

r

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

Find the SA of this sphere. Give your answer in terms of π

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

$4\pi(15)^2$

900π cm^2

30 cm

A sphere fits perfectly inside of a cube whose edges are 8 in. Find the surface area of the cube and the sphere to the nearest tenth.
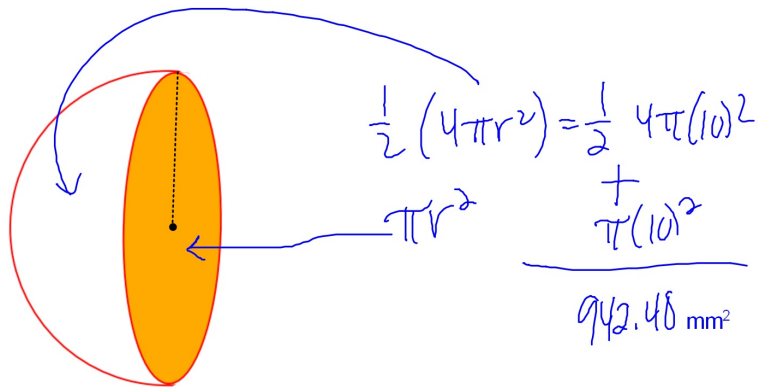

8 in

8 in

8 in

cube $SA = 6(8)^2 = 384\ cm^2$

sphere $SA = 4\pi r^2$

$4\pi(4)^2 = 201.1\ cm^2$

What is a hemisphere?

Half of a sphere

Find the Surface Area of a Hemisphere whose radius is 10 mm.

$\frac{1}{2}(4\pi r^2) = \frac{1}{2}\ 4\pi(10)^2$

$+$

$\pi r^2 \qquad \pi(10)^2$

$\overline{}$

$942.48\ mm^2$

Volume of a Sphere

$$\text{Volume} = \frac{4}{3}\pi r^3$$

Find the volume of this sphere. Leave your answer in terms of π

16 in

$r = 8$

$\frac{4}{3}\pi(8)^3$

$\dfrac{2048\pi}{3}$