Flash Cards: Surface Area and Volume of Spheres

Directions: Answer each question.

1. Find the surface area and volume of a sphere with radius equal to 8 centimeters.

2. Find the surface area and volume of a sphere with diameter equal to 8.5 feet.

3. A sphere has a surface area of 452.39 m^2. Determine the length of the radius and the volume of the sphere.

4. A sphere has a volume of 91.95 in^3. Determine the length of the radius and the surface area of the sphere.

Answers:

1. $SA = 4\pi r^2$
$SA = 4\pi(8)^2$
$SA = 804.25\ cm^2$

V = four-thirds pi r cubed.
V = four-thirds pi time 8 cubed.
$V = 2144.66\ cm^3$

2. Since the diameter is 8.5 ft, the radius is 4.25 ft

$SA = 4\pi r^2$
$SA = 4\pi(4.25)^2$
$SA = 226.98\ ft^2$

V = four-thirds pi r cubed.
V = four-thirds pi time 4.25 cubed.
$V = 321.56\ ft^3$

3. $452.39 = 4\pi r^2$
$36 = r^2$
6 m = r

Use the length of the radius to determine the volume of the sphere.
V = four-thirds pi r cubed.
V = four-thirds pi time 6 cubed.
$V = 904.78\ m^3$

4. 91.95 = four-thirds pi r cubed

$21.95 = r^3$
$r = 2.8$ in

Use the length of the radius to determine the surface area of the sphere.

$SA = 4\pi r^2$
$SA = 4\pi(2.8)^2$
$SA = 98.52$ in^2