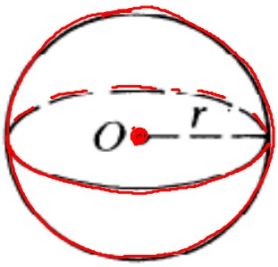
12-4 Spheres

March 28

std. 9.0



surface area of a sphere $SA. = 4\pi r^2$

volume of a sphere $V = \frac{4}{3}\pi r^3$

Ex. 1 diameter of sphere = 16 cm

find surface area and volume

$V = \frac{4}{3}\pi r^3$ $\quad SA = 4\pi r^2$

$V = \frac{4}{3}\pi \cdot 8^3 = \frac{2048\pi}{3}\ cm^3$ $\quad = 4\pi(8^2) = 256\pi\ cm^2$

Ex. 2 The volume of a sphere is 288π. Find its area.

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

$\frac{3}{4}(288\pi) = \left(\frac{4}{3}\pi r^3\right)\frac{3}{4}$

$\sqrt[3]{216} = \sqrt[3]{r^3}$

$6 = r$

$SA = 4\pi r^2$

$4 \cdot \pi \cdot 36$

144π

Ex. 3 Find the volume of a hemisphere with radius 5.

½ Sphere

$V = \left(\frac{4}{3}\pi r^3\right) \div 2 = \left(\frac{4}{3}\pi \cdot 125\right)\frac{1}{2}$

$\frac{1}{2}\left(\frac{4}{3}\pi r^3\right)$

$\left(\frac{500\pi}{3}\right)\frac{1}{2}$

$\frac{250\pi}{3}$