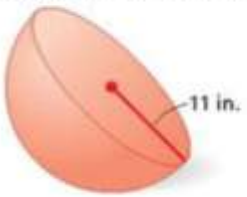
Day 5 Volume of Spheres HW
pg. 770: 2-4, 13, 15, 24, 26

Find each measurement. Give your answers in terms of π.

2. the volume of the hemisphere

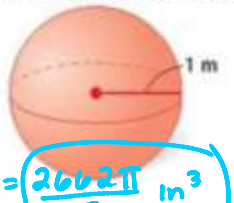


$V = \frac{4\pi r^3}{3}$

$= \frac{4\pi(11)^3}{3}$

$= \frac{5324\pi}{3} \div 2 = \frac{2662\pi}{3}$ in^3

3. the volume of the sphere



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

$= \frac{4\pi(1)^3}{3}$

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

4. the radius of a sphere with volume 288π cm^3

$V = \frac{4\pi r^3}{3} \rightarrow 3 \cdot 288\pi = \frac{4\pi r^3}{3} \cdot 3$

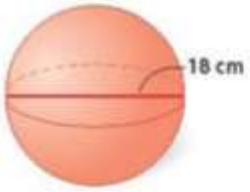
$864\pi = 4\pi r^3$

$\sqrt[3]{216} = \sqrt[3]{r^3}$ ← what # mult by itself 3 times gives you 216? 6 ☺

$r = 6$ cm

Find each measurement. Give your answers in terms of π.

13. the volume of the sphere

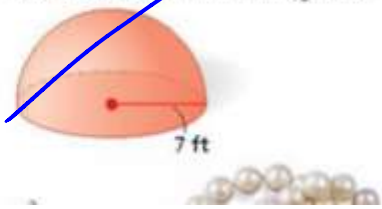


$V = \frac{4\pi r^3}{3}$

$= \frac{4\pi(9)^3}{3}$

$= 972\pi$ cm^3

14. the volume of the hemisphere



15. the diameter of a sphere with volume 7776π in^3

$V = \frac{4\pi r^3}{3} \rightarrow 3 \cdot 7776\pi = \frac{4\pi r^3}{3} \cdot 3$

$23{,}328\pi = 4\pi r^3$

$\sqrt[3]{5832} = \sqrt[3]{r^3}$

$18 = r$

$d = 36$ in

24. Find the radius of a hemisphere with a volume of 144π cm^3.

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

$3 \cdot 288\pi = \frac{4\pi r^3}{3} \cdot 3$

$864\pi = 4\pi r^3$

$216 = r^3$

so $r = 6$ cm

of hemisphere $\times 2$ 288π

or $V = \frac{2\pi r^3}{3}$

$144\pi = \frac{2\pi r^3}{3}$

$432\pi = 2\pi r^3 \rightarrow 216 = r^3$ so $r = 6$ cm

26. Find the volume of a sphere with a circumference of 36π ft.

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

$= \frac{4\pi(18)^3}{3}$

$V = 7{,}776\pi$ ft^3

$C = \pi d$

$36\pi = \pi d$

$36 = d$

so $r = 18$