

A man is living with his terminally ill wife. She has gone to many doctors and all say that she will be dead within one week. Because they had to see so many doctors, the couple has no money. One day a poor pharmacist in their little town comes up with a miracle pill that will definitely save the wife's life. The only problem is it costs \$100,000. When the man asked the poor pharmacist for help since he couldn't afford it, the poor pharmacist said no because then he wouldn't be able to afford keeping his store. It just so happens that the poor pharmacist is out of town for the week so there will be no one in his little store. There are no police for 20 miles around him and there are hardly any people in the little town. Do you think it is OK for the man to steal the pill to save his wife? Why or why not?

## 10.8 Spheres

sphere: set of pts. equidistant from a center pt.

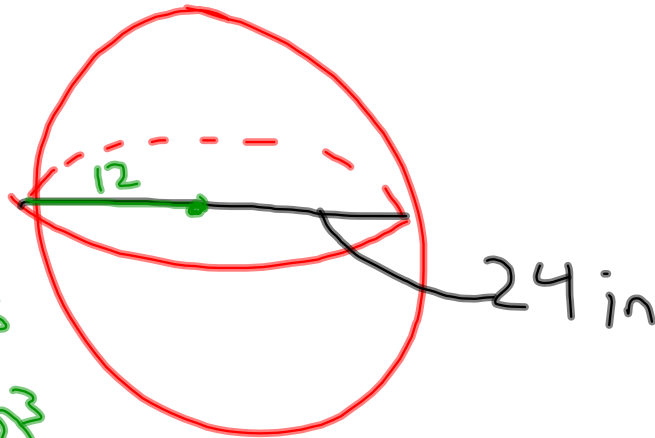
radius: connects the center to any point on the sphere.

hemisphere:  $\frac{1}{2}$  of a sphere

great circle: divides a sphere into 2 hemispheres.

Volume of a sphere with  
radius,  $r$ , is  $V = \frac{4}{3}\pi r^3$

$E_x$



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

$$V = \frac{4}{3}\pi (12)^3$$

$$V = 2303.9 \pi \text{ in}^3$$

Find the volume of a hemisphere  
with radius 15 cm.

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

$$= \frac{4}{3} \pi (15)^3$$

$$= \frac{4500\pi}{2} \text{ sphere}$$

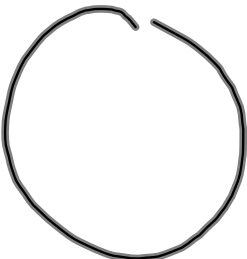
$$= 2250\pi \text{ cm}^3 \text{ hemisphere}$$

Surface area of a sphere  
with radius  $r$ , is

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

Ex: Find the S.A. of a  
sphere with a great circle  
with an area of  $49\pi \text{ ft}^2$

$$S = 4\pi r^2$$
$$S = 4\pi(7)^2$$
$$= 196\pi \text{ ft}^2$$


$$\frac{\pi r^2}{\pi} = \frac{49\pi}{\pi}$$
$$\sqrt{r^2} = \sqrt{49}$$
$$r = 7$$

The volume of a sphere  
with S.A. of  $324\pi \text{ in}^2$ .

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

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

$$V = 972\pi \text{ in}^3$$

$$\frac{4\pi r^2}{4\pi} = \frac{324\pi}{4\pi}$$

$$\sqrt{r^2} = \sqrt{81}$$

$$r = 9$$

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