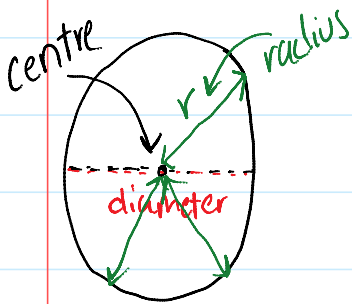


1.6 Surface Area & Volume of a Sphere

September-17-13

10:57 AM

Sphere :



→ the set of points in space that are the same distance from a fixed point, which is the centre

→ a line segment that joins the centre to any point on the sphere is a radius

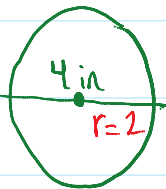
→ a line segment that joins 2 points on a sphere and passes through the centre is a diameter

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

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

Ex. #1

The diameter of a softball is 4 in. SA??



$$\begin{aligned} SA &= 4\pi r^2 \\ &= 4\pi(2)^2 \\ &= \boxed{50.3 \text{ in}^2} \end{aligned}$$

Ex. #2

SA of a soccer ball is 250 in^2 . ? diameter?

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

$$\frac{250}{4\pi} = \frac{4\pi r^2}{4\pi}$$

$$\sqrt{19.89} = \sqrt{r^2}$$

$$4.46 = r$$

$$\rightarrow \text{diameter} = 2r$$

$$= 2(4.46) = \boxed{8.9 \text{ in}}$$

Ex #3

The moon's diameter is 2160 mi . ? Volume?

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

$$= \frac{4}{3}\pi (1080)^3$$

$$= \boxed{5.28 \times 10^9 \text{ mi}^3}$$

$$d = \frac{2160 \text{ mi}}{2} = 1080 \text{ mi}$$

Exercises pg. 51 # 3-5, 7-9, 11, 15, 18

* Quiz tomorrow!!

Assignment due tomorrow!!