

Linear and Angular Speed:

$$\text{linear speed (v)} : \frac{\text{arc length}}{\text{time}} = \frac{s}{t} = \frac{\theta r}{t}$$

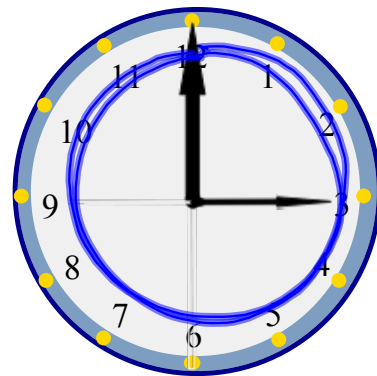
* angle \Rightarrow radians

$$\text{angular speed (w)} : \frac{\text{central angle}}{\text{time}} = \frac{\theta}{t}$$

* angle \Rightarrow radians

The second hand of a clock is 10.2 centimeters long. Find the linear speed of the tip of this second hand as it passes around the clock face.

$$v = \frac{2\pi(10.2)}{60}$$
$$v = 1.068 \text{ cm/sec}$$



Area of a sector:

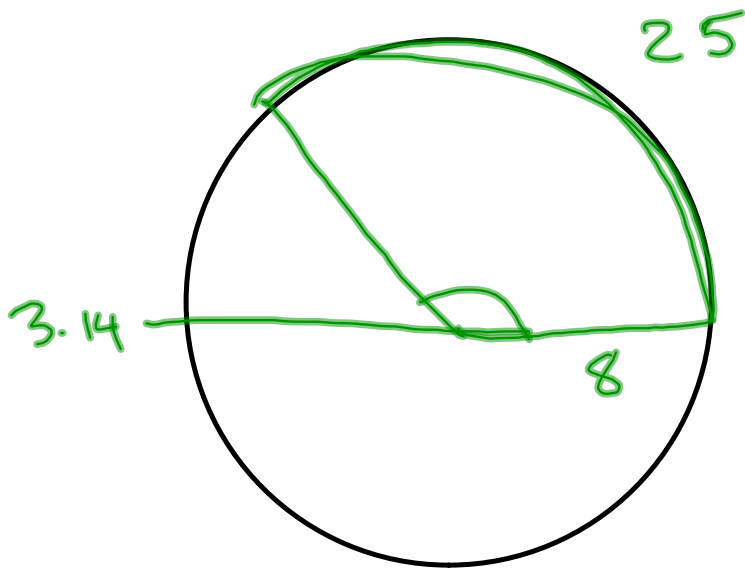
$$A = \frac{1}{2} r^2 \theta$$

↑ radius ↖ radian

A sprinkler on a golf course fairway is set to spray water over a distance of 70 ft and rotates through an angle of 120° . Find the area of the fairway watered by the sprinkler.



$$A = \frac{1}{2} (70)^2 \frac{2\pi}{3}$$
$$= 5,131 \text{ ft}^2$$



$$\theta = \frac{s}{r}$$

$$\theta = \frac{25}{8}$$

$$\theta = 3.125$$