

# Chapter 6 Trigonometric Functions

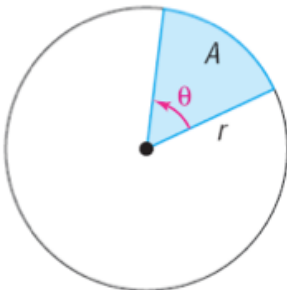
## 6.1 Angles and Their Measures

Day 3

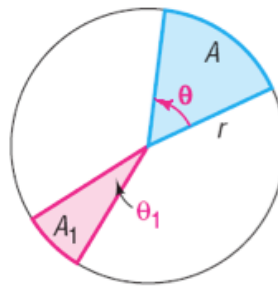
### 4 Find the Area of a Sector of a Circle

$$\frac{45}{360} \cdot \pi r^2$$

#### Area of a Sector



$$\frac{\theta}{\theta_1} = \frac{A}{A_1}$$



The area  $A$  of the sector of a circle of radius  $r$  formed by a central angle of  $\theta$  radians is

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

**EXAMPLE** Finding the Area of a Sector of a Circle

Find the area of the sector of a circle of radius 5 feet formed by an angle of  $60^\circ$ . Round the answer to two decimal places.

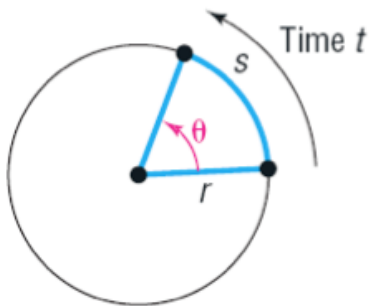
$$60^\circ = \frac{\pi}{3}$$

$$A = \frac{1}{2}(5)^2 \left(\frac{\pi}{3}\right)$$

$$= \frac{25\pi}{6}$$

$$= 13.09 \text{ ft}^2$$

5 Find the Linear Speed of an Object Traveling in Circular Motion



$$v = \frac{s}{t}$$

Linear Speed

$$\omega = \frac{\theta}{t}$$

Angular Speed

$$v = r\omega$$

$s = \text{arc length}$

**EXAMPLE** Finding Linear Speed

A child is spinning a rock at the end of a 3-foot rope at the rate of 160 revolutions per minute (rpm). Find the linear speed of the rock when it is released.

$$\cancel{V = \frac{s}{t}} \quad \cancel{W = \frac{\theta}{t}} \quad V = rW$$

$$V = (3)(320\pi) = 3015.93 \frac{\text{ft}}{\text{min}}$$

$$\frac{160 \text{ rev}}{\text{min}} \cdot \frac{2\pi \text{ rad}}{1 \text{ rev}} = 320\pi \frac{\text{rad}}{\text{min}}$$

$$960\pi \frac{\text{ft}}{\text{min}} \cdot \frac{1 \text{ mi}}{5280 \text{ ft}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = 34.27 \text{ mph}$$

6.1 Day 2

pg. 373 - 374 # 71 - 90

91 - 111 odd