

# Chapter 1 Trigonometry

## Section 1.1 Radian and Degree Measure

**Objective:** In this lesson you learned how to describe an angle and to convert between radian and degree measure.

Course Number

Instructor

Date

### Important Vocabulary

Define each term or concept.

**Trigonometry**

**Central angle** of a circle

**Complementary angles**

**Supplementary angles**

**Degree**

### I. Angles (Page 120)

An **angle** is determined by . . .

The **initial side** of an angle is . . .

The **terminal side** of an angle is . . .

The **vertex** of an angle is . . .

An angle is in **standard position** when . . .

A **positive angle** is generated by a \_\_\_\_\_ rotation; whereas a **negative angle** is generated by a \_\_\_\_\_ rotation.

If two angles are **coterminal**, then they have . . .

*What you should learn*  
How to describe angles

**II. Radian Measure** (Pages 121–123)

The measure of an angle is determined by . . .

***What you should learn***  
How to use radian  
measure

One **radian** is the measure of a central angle  $q$  that . . .

A central angle of one full revolution (counterclockwise) corresponds to an arc length of  $s =$  \_\_\_\_\_.

In general, the radian measure of a central angle  $q$  is obtained by . . .

A full revolution around a circle of radius  $r$  corresponds to an angle of \_\_\_\_\_ radians. A half revolution around a circle of radius  $r$  corresponds to an angle of \_\_\_\_\_ radians.

Angles with measures between 0 and  $p/2$  radians are \_\_\_\_\_ angles. Angles with measures between  $p/2$  and  $p$  radians are \_\_\_\_\_ angles.

To find an angle that is coterminal to a given angle  $q$ , . . .

**Example 1:** Find an angle that is coterminal with  $q = -p/8$ .

**Example 2:** Find the supplement of  $q = p/4$ .

**III. Degree Measure** (Pages 123–124)

A full revolution (counterclockwise) around a circle corresponds to \_\_\_\_\_ degrees. A half revolution around a circle corresponds to \_\_\_\_\_ degrees.

***What you should learn***  
How to use degree  
measure

To convert degrees to radians, . . .

To convert radians to degrees, . . .

**Example 3:** Convert  $120^\circ$  to radians.

**Example 4:** Convert  $9p/8$  radians to degrees.

**Example 5:** Complete the following table of equivalent degree and radian measures for common angles.

$q$ (degrees)	$0^\circ$		$45^\circ$		$90^\circ$		$270^\circ$
$q$ (radians)		$p/6$		$p/3$		$p$	

#### IV. Applications of Angles (Pages 125–126)

To find the length  $s$  of a circular arc of radius  $r$  and central angle  $q$ , . . .

Consider a particle moving at constant speed along a circular arc of radius  $r$ . If  $s$  is the length of the arc traveled in time  $t$ , then the **linear speed** of the particle is

linear speed = \_\_\_\_\_

If  $q$  is the angle (in radian measure) corresponding to the arc length  $s$ , then the **angular speed** of the particle is

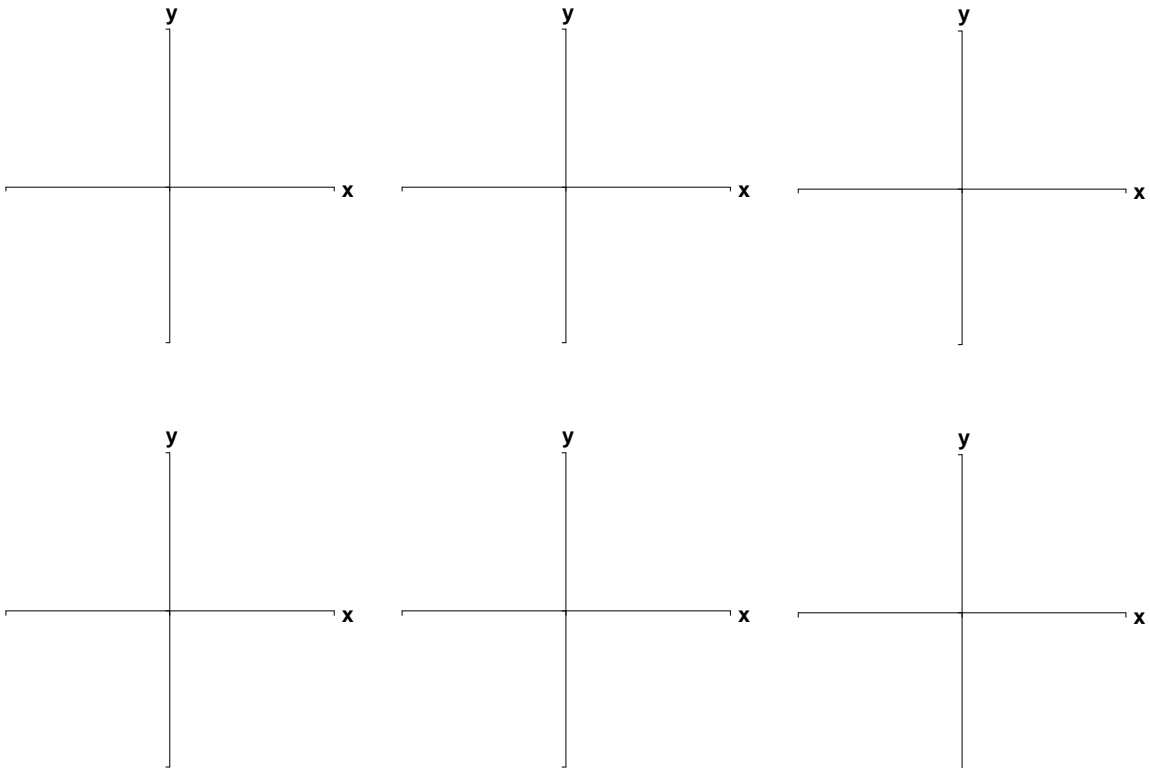
angular speed = \_\_\_\_\_

**Example 6:** A 6-inch-diameter gear makes 2.5 revolutions per second. Find the angular speed of the gear in radians per second.

#### *What you should learn*

How to use angles to model and solve real-life problems

**Additional notes**



**Homework Assignment**

Page(s)

Exercises