

Chapter 5 Trigonometric Functions

Section 5.1 Angles and Their Measures

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

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Degree

Complementary angles

Supplementary angles

I. Angles (Page 366)

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

What you should learn
How to describe angles

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 . . .

II. Degree Measure (Pages 367–368)

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

Angles with measures between 0° and 90° are _____ angles. Angles with measures between 90° and 180° are _____ angles.

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

Example 1: (a) Find the supplement of 44° .
(b) Find the complement of 81° .

What you should learn
How to use degree
measure

III. Radian Measure (Page 369)

A central angle of a circle is . . .

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.

What you should learn
How to use radian
measure

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

IV. Conversion of Angle Measure (Page 370)

To convert degrees to radians, . . .

To convert radians to degrees, . . .

What you should learn
How to convert between degree and radian measure

Example 3: Convert 120° 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°		45°		90°		270°
q (radians)		$p/6$		$p/3$		p	

V. Applications of Angles (Pages 371–372)

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

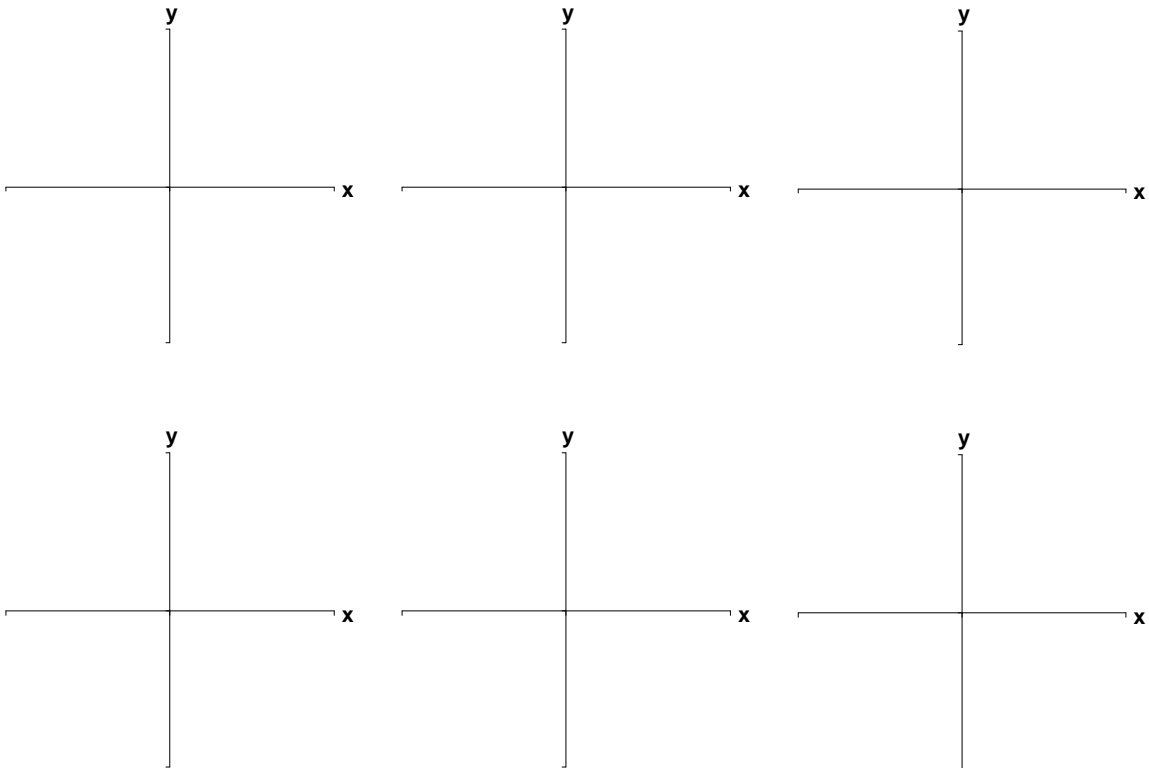
linear speed = _____

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

angular speed = _____

What you should learn
How to use angles to model and solve real-life problems

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

Additional notes**Homework Assignment**

Page(s)

Exercises