Chapter 4 Trigonometry

Course Number

Instructor

Date

Section 4.1 Radian and Degree Measure

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

Important Vocabulary Define each term or concept.

Trigonometry

Central angle of a circle

Complementary angles

Supplementary angles

Degree

What you should learn
How to describe angles

I. Angles (Page 352)

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 . . .

II. Radian Measure (Pages 353–355)

What you should learn
How to use radian measure

The measure of an angle is determined by . . .

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 355–356)

What you should learn
How to use degree measure

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

To convert degrees to radians, . . .

To convert radians to degrees, . . .

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	

IV. Applications of Angles (Pages 357–358)

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

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

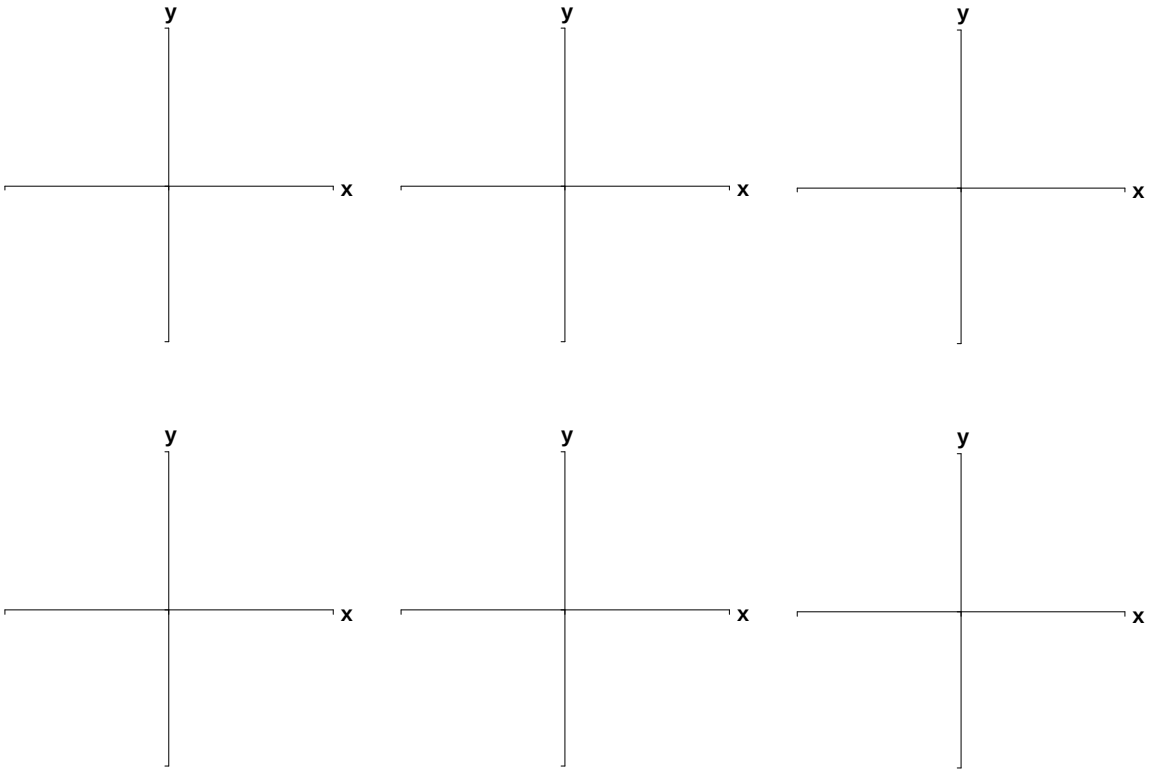
linear speed = _____

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.

Additional notes



Homework Assignment

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