NOTES: Section 13.2 – Define General Angles and Use Radian Measure

Goals: #1 - I can fill out a unit circle with all special angles (increments of 30 and 45 degrees) marked in both radians and degrees.

#2 - I can convert an angles measure between radians and degrees.

#3 - I can draw an angle in standard position when given its measure in either radians or degrees.

#4 - I can find positive and negative coterminal angles with a given angle (working in both radians and degrees).

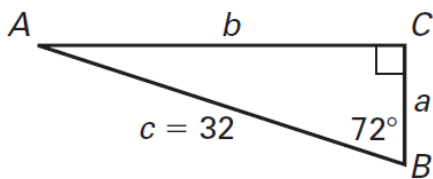#5 - I can find the arc length and area of a sector when given the radius and central angle θ.

#6 - I can evaluate a trigonometric function of an angle whose measure is given in radians.

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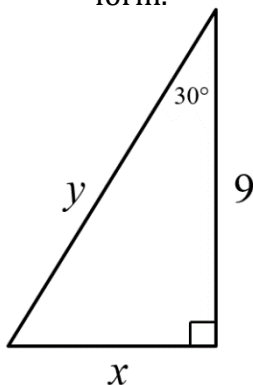
Homework: Lesson 13.2 Worksheet

Warm Up:

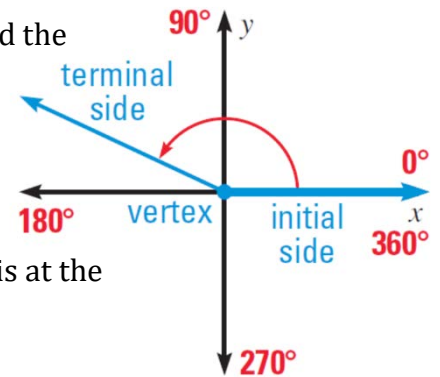1. Solve $\triangle ABC$. Round answers to the nearest <u>tenth</u>.

2. Find the exact value of x and y. Answers should be expressed in simplest radical form.

Notes:

In a coordinate plane, an angle can be formed by fixing one ray, called the

_____ and rotating the other ray called the
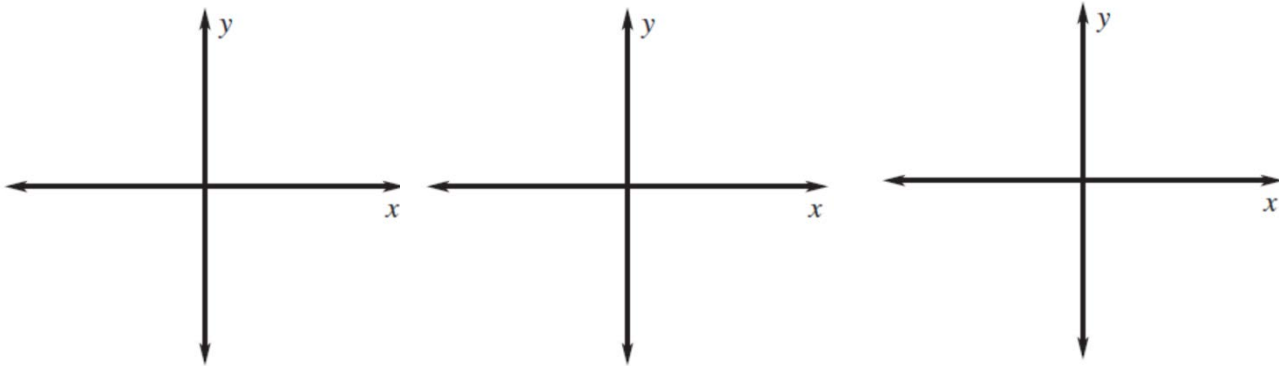
_____ about the vertex.

An angle is in _____ if its vertex is at the

origin and its initial side lies on the positive x-axis.

Example #1: Draw an angle with the given measure in standard position.

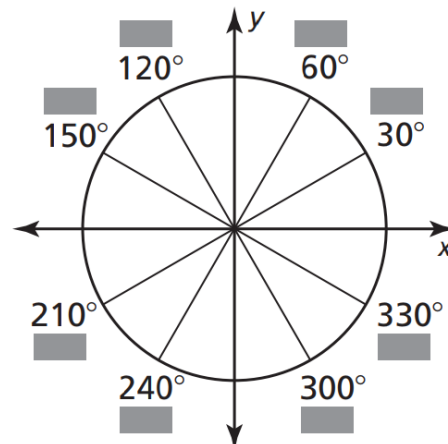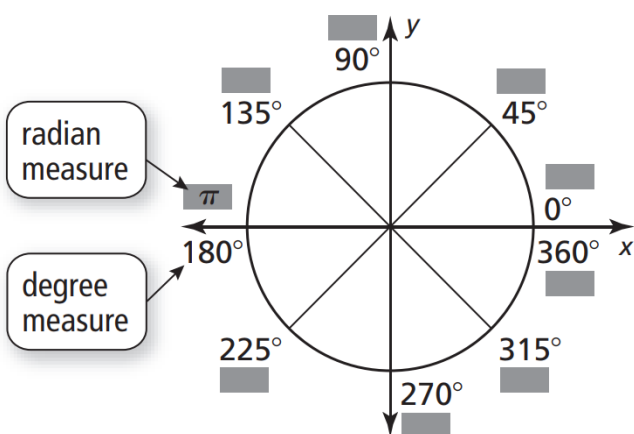 1. 240°   2. 405°   3. −65°

Notes:

Another unit of measuring angles is by using _____.

Because the circumference of a circle is _____, there are _____ radians in a full circle.
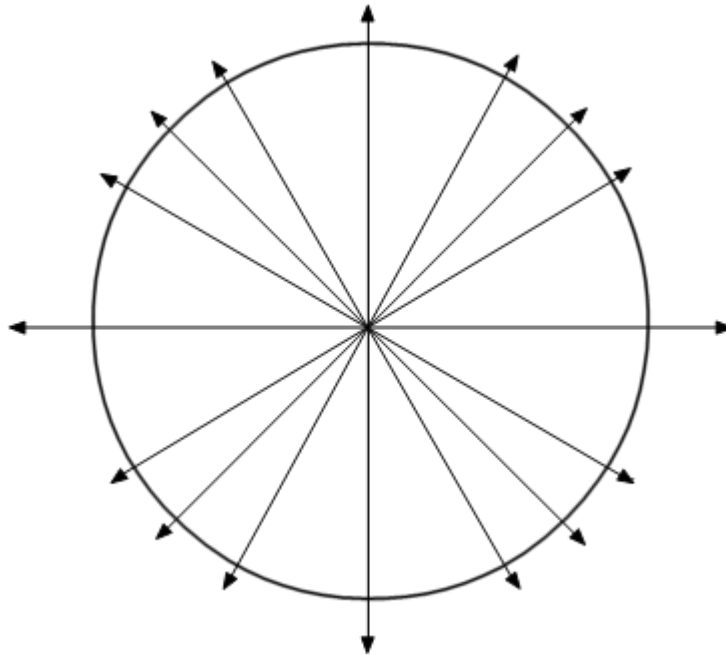
Exploration #1: Work with a partner and write the radian measure of each angle with the given degree measure.

Notes:

_____ and _____ Measures of Special Angles:

To convert between _____ and _____:

- _____ to _____:

  Multiply degree measure by

- _____ to _____:

  Plug in

Example #2: Convert the degree measure to radians or the radian measure to degrees.

1. 315°

2. $-\frac{\pi}{4}$

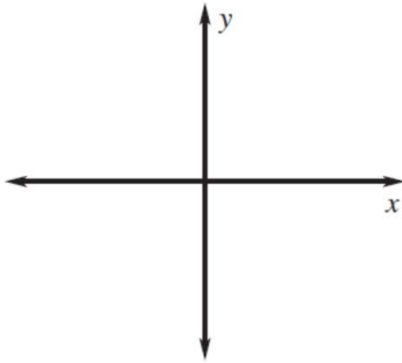3. 500°

Name:_____ Hour: _____ Date: _____
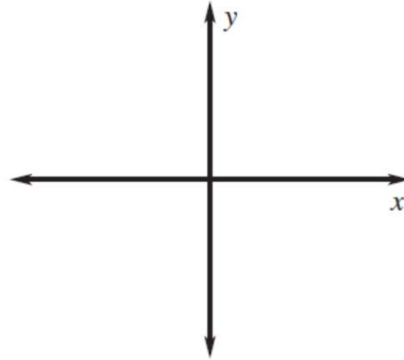
You practice:

1. Draw an angle with the given measure in standard position.
     a. 255°   b. $\frac{26\pi}{9}$

2. Convert the degree measure to radians or the radian measure to degrees.
     a. $-310°$ b. $\frac{16\pi}{15}$

Notes:

Angles that are _____ lie in the _____ standard position.

We can find _____ angles by adding and subtracting multiples of _____.

Example #3: Find one positive angle and one negative angle that are coterminal with the given angle.

    1. $-130°$ 2. $\frac{3\pi}{4}$

Name:_____ Hour: _____ Date: _____

Example #4: Evaluate the trigonometric funciton. When possible, give an exact answer. When using a calculator, round answers to the nearest <u>hundredth</u>.

   1. $\cos\dfrac{\pi}{4}$ 2. $\csc\dfrac{4\pi}{11}$

You practice:

   1. Find one positive angle and one negative angle that are coterminal with $\dfrac{4\pi}{5}$.

   2. Evaluate the trigonometric funciton. When possible, give an exact answer. When using a calculator, round answers to the nearest <u>hundredth</u>.

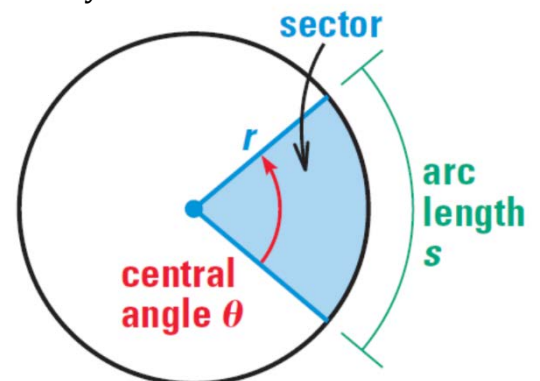   a. $\sec\dfrac{\pi}{3}$ b. $\tan\dfrac{\pi}{5}$

Notes:

A _____ is a region of a circle that is bounded by two radii and an arc of the circle.

The _____ θ of a sector is the angle formed by the two radii.

     ● _____:

     ● _____:

Example #5: Children at a day camp are playing a game on a circular field. The shaded sector in the figure is called the "safe zone," and is marked off by rope along its outer edge. Find the length of the rope and the area of the safe zone.