

13.2 Define General Angles and Use Radian Measure

TEKS a.1, a.4, a.5;
P.3.E

Before

You used acute angles measured in degrees.

Now

You will use general angles that may be measured in radians.

Why?

So you can find the area of a curved playing field, as in Example 4.



Key Vocabulary

- initial side
- terminal side
- standard position
- coterminal
- radian
- sector
- central angle

In Lesson 13.1, you worked only with acute angles. In this lesson, you will study angles with measures that can be any real numbers.

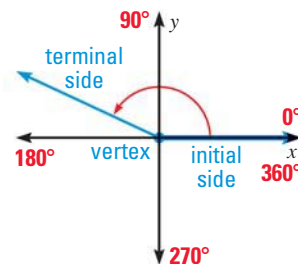
KEY CONCEPT

For Your Notebook

Angles in Standard Position

In a coordinate plane, an angle can be formed by fixing one ray, called the **initial side**, and rotating the other ray, called the **terminal side**, about the vertex.

An angle is in **standard position** if its vertex is at the origin and its initial side lies on the positive x -axis.



The measure of an angle is positive if the rotation of its terminal side is counterclockwise, and negative if the rotation is clockwise. The terminal side of an angle can make more than one complete rotation.

EXAMPLE 1 Draw angles in standard position

Draw an angle with the given measure in standard position.

a. 240°

b. 500°

c. -50°

Solution

a. Because 240° is 60° more than 180° , the terminal side is 60° counterclockwise past the negative x -axis.

b. Because 500° is 140° more than 360° , the terminal side makes one whole revolution counterclockwise plus 140° more.

c. Because -50° is negative, the terminal side is 50° clockwise from the positive x -axis.

