**COTERMINAL ANGLES** In Example 1, the angles 500° and 140° are **coterminal** because their terminal sides coincide. An angle coterminal with a given angle can be found by adding or subtracting multiples of 360°.

## EXAMPLE 2 Find coterminal angles

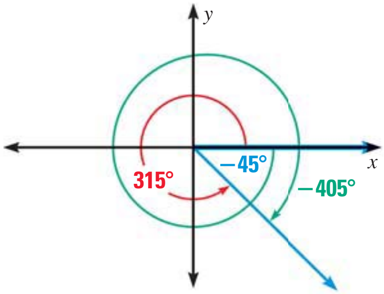
**Find one positive angle and one negative angle that are coterminal with (a) −45° and (b) 395°.**

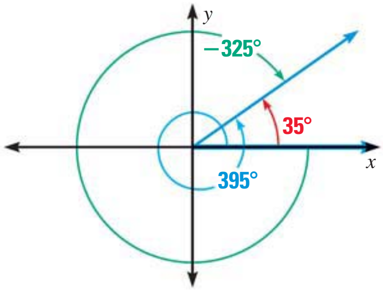
### Solution

There are many such angles, depending on what multiple of 360° is added or subtracted.

**a.** $-45° + 360° = 315°$
$-45° - 360° = -405°$

**b.** $395° - 360° = 35°$
$395° - 2(360°) = -325°$



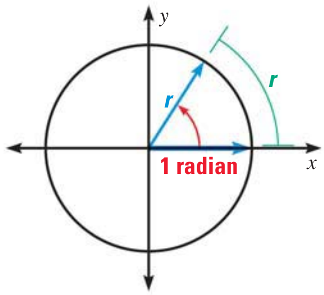




## ✓ GUIDED PRACTICE for Examples 1 and 2

**Draw an angle with the given measure in standard position. Then find one positive coterminal angle and one negative coterminal angle.**

**1.** 65° **2.** 230° **3.** 300° **4.** 740°

**RADIAN MEASURE** Angles can also be measured in *radians*. To define a radian, consider a circle with radius *r* centered at the origin as shown. One **radian** is the measure of an angle in standard position whose terminal side intercepts an arc of length *r*.




Because the circumference of a circle is $2\pi r$, there are $2\pi$ radians in a full circle. Degree measure and radian measure are therefore related by the equation $360° = 2\pi$ radians, or $180° = \pi$ radians.

## KEY CONCEPT *For Your Notebook*

### Converting Between Degrees and Radians

**Degrees to radians**

Multiply degree measure by $\dfrac{\pi \text{ radians}}{180°}$.

**Radians to degrees**

Multiply radian measure by $\dfrac{180°}{\pi \text{ radians}}$.