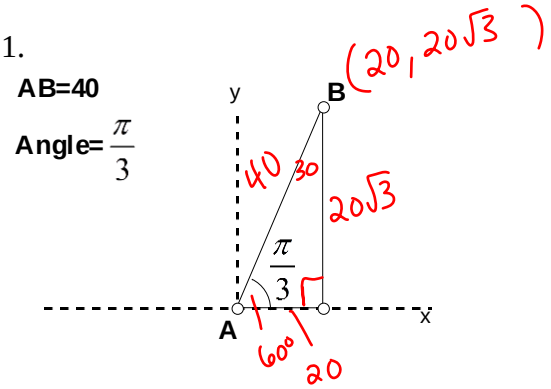
**Algebra 2 Trig**
**Notes Day 10 - Radians**

**Name:** Key

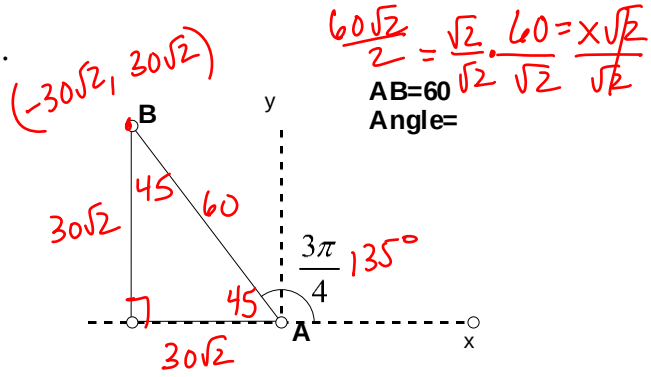
## Right Triangle Trigonometry and Coordinates

In each drawing below, an angle of rotation and a length are given. Use right triangle trigonometry to find the coordinates of B, the terminal point of the rotation. Leave your answer in radical form.

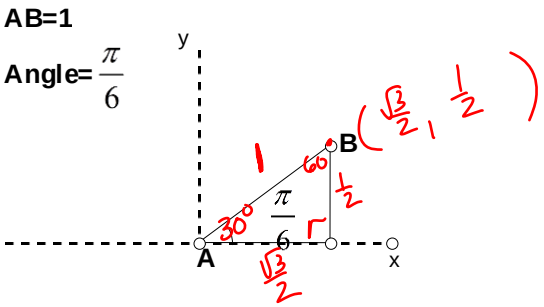
1.



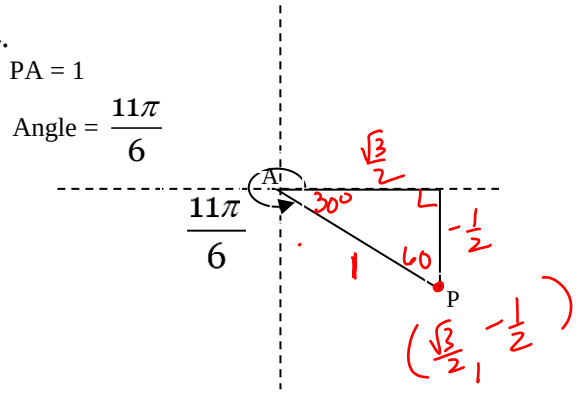

2.




3.



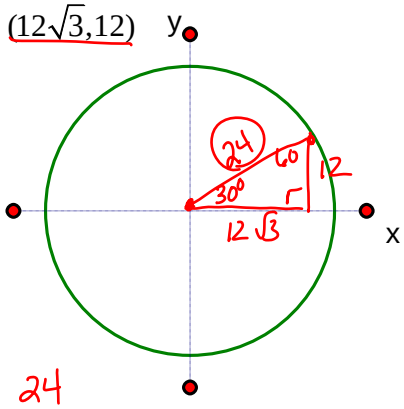

4.




**In the next problems, a terminal point is given. Please...**

(a) Plot the coordinate.
(b) Find the length of the hypotenuse, *r*.
(c) Drop a triangle, and find the reference angle.
(d) Find θ.

**5.** $(12\sqrt{3}, 12)$

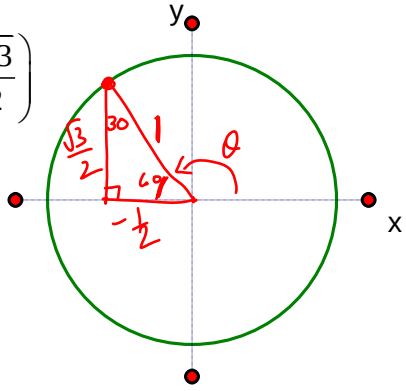



r = 24

ref < = 30°

θ = 30°

**6.** $\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$




r = 1

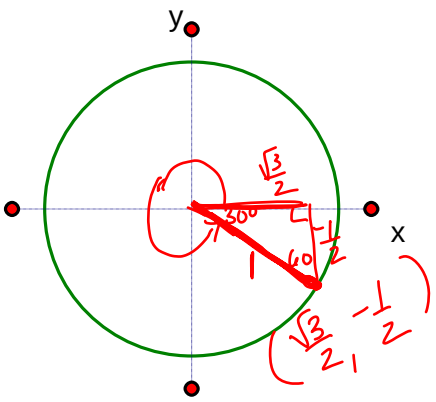
ref < = 60° or $\frac{\pi}{3}$

$60 \cdot \frac{\pi}{180}$

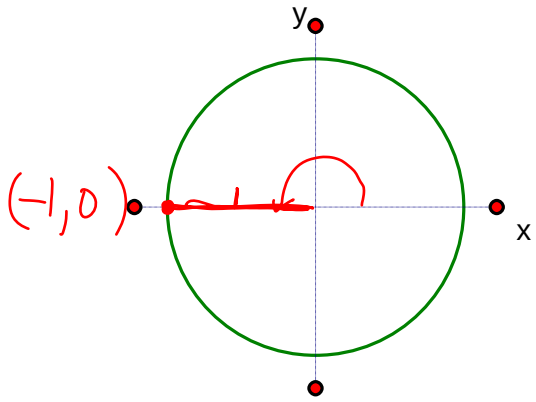
θ = 120° or $\frac{2\pi}{3}$

**Find the coordinates of the terminal point.**

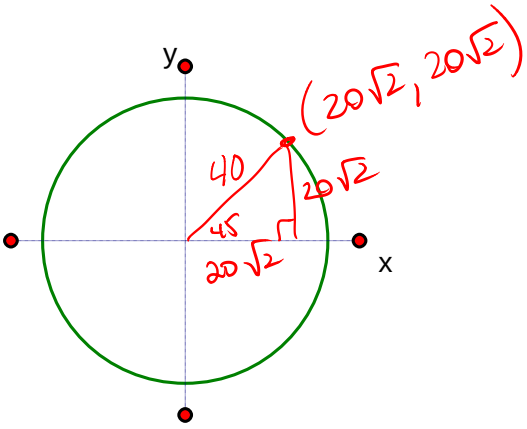
**1.** $\theta = \frac{11\pi}{6}$ and radius = 1



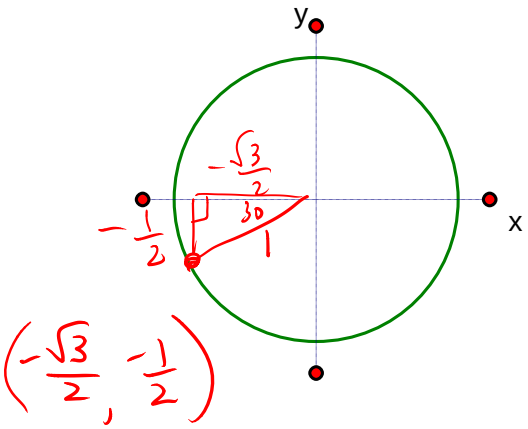

**2.** $\theta = \pi$ and radius = 1




**3.** $\theta = \frac{\pi}{4}$ and radius = 40




**4.** $\theta = \frac{7\pi}{6}$ and radius = 1

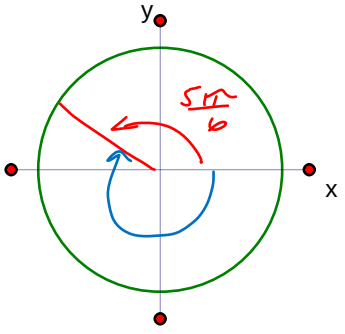



***Coterminal Angles*** **are angles in standard position that share the same terminal side.**

**Example: 30°,** 390° **and** -330 **are coterminal angles**

**1. 120°,** 480° **and** -240° **are coterminal angles.**

**2.** $\frac{5\pi}{6}$ $\frac{17\pi}{6}$ **and** $\frac{-7\pi}{6}$ **are coterminal angles**




$\frac{5\pi}{6} = 150°$

$\frac{5\pi}{6} + \frac{12\pi}{6} = \frac{17\pi}{6}$

$\frac{12\pi}{6} - \frac{5\pi}{6} = \frac{-7\pi}{6}$