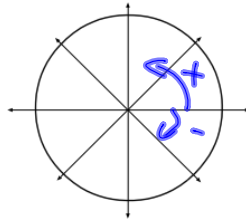## 4.1 Radian and Degree Measure
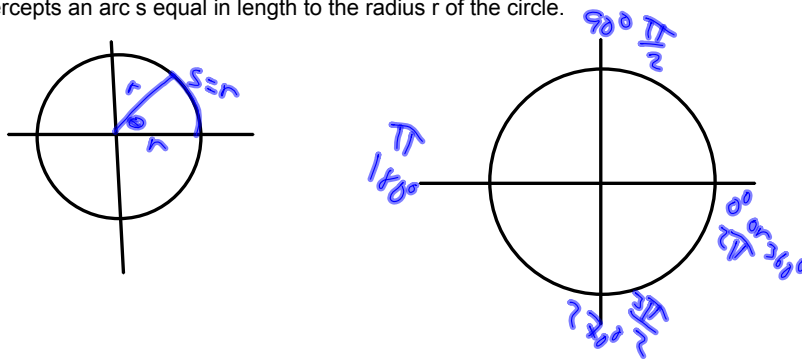Day 1
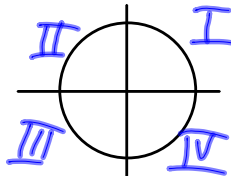**Trigonometry** means "measurement of triangles"

I. <u>Standard Position of Angles</u>: Positive angles--
Negative angles--

II. <u>Radian Measure</u>: One radian is the measure of a central angle ϴ that intercepts an arc s equal in length to the radius r of the circle.

III. <u>Quadrants</u>:

IV. <u>Radians versus Degrees</u>
   <u>Radians to Degrees</u>: multiply by 180/¶
   <u>Degrees to Radians</u>: multiply by ¶/180

Ex 1) Convert from one measure to the other.
   A) 395°

$$395 \cdot \frac{\pi}{180} = \frac{395\pi}{180} = 6.894 \text{ radians}$$

   B) -48°

$$-48 \cdot \frac{\pi}{180} = \frac{-48\pi}{180} = -0.8378 \text{ radians}$$

   C) $\frac{8\pi}{13}$

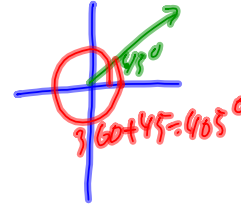$$\frac{8\pi}{13} \cdot \frac{180°}{\pi} = \frac{8 \cdot 180}{13} = \frac{1440}{13} = 110.8°$$

   D) -6.5

$$-6.5 \cdot \frac{180}{\pi} = \frac{-6.5 \cdot 180}{1} = -1170°$$

Ex 2) <u>Coterminal Angles</u>: 2 angles that have the same initial and terminal side.

<u>Find one positive and negative coterminal angle</u>.

1. 300° $+360 = \boxed{660°}$

$-360 = \boxed{-60°}$

terminal
initial

$360+45=405°$

2. $\dfrac{7\P}{6}$ $+\dfrac{2\pi}{1} \cdot \dfrac{6}{6} = \dfrac{7\pi}{6} + \dfrac{12\pi}{6} = \boxed{\dfrac{19\pi}{6}}$

$\dfrac{7\pi}{6} - \dfrac{4\pi}{1} \cdot \dfrac{6}{6} = \dfrac{7\pi}{6} - \dfrac{24\pi}{6} = \boxed{\dfrac{-17\pi}{6}}$

Ex 3) <u>Find the compliment and supplement of each angle, if possible</u>.

A) 110° $C: 90-110 = $ no compliment
$S: 180-110 = 70°$

B) $\dfrac{\P}{12}$ $C: \dfrac{\pi}{2} \cdot \dfrac{6}{6} - \dfrac{\pi}{12} = \dfrac{6\pi}{12} - \dfrac{\pi}{12} = \boxed{\dfrac{5\pi}{12}}$

$S: \dfrac{\pi}{1} \cdot \dfrac{12}{12} - \dfrac{\pi}{12} = \dfrac{12\pi}{12} - \dfrac{\pi}{12} = \boxed{\dfrac{11\pi}{12}}$