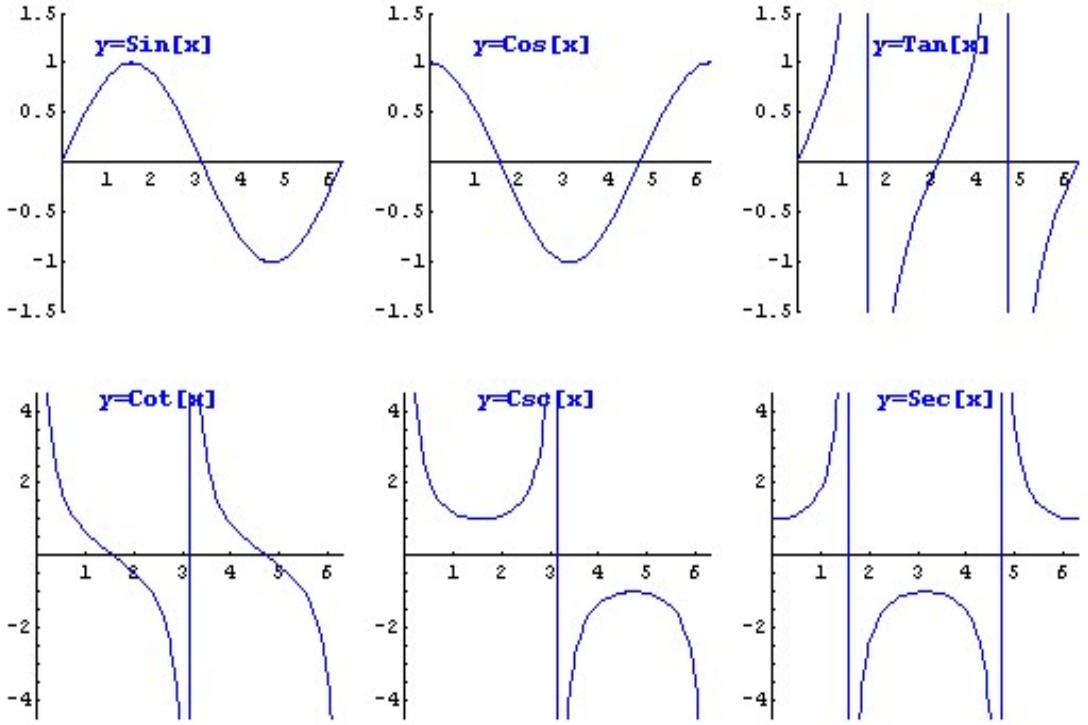
Ch.6 Trig Functions (triangle approach)

Ch.5 Trig Functions (unit circle approach)

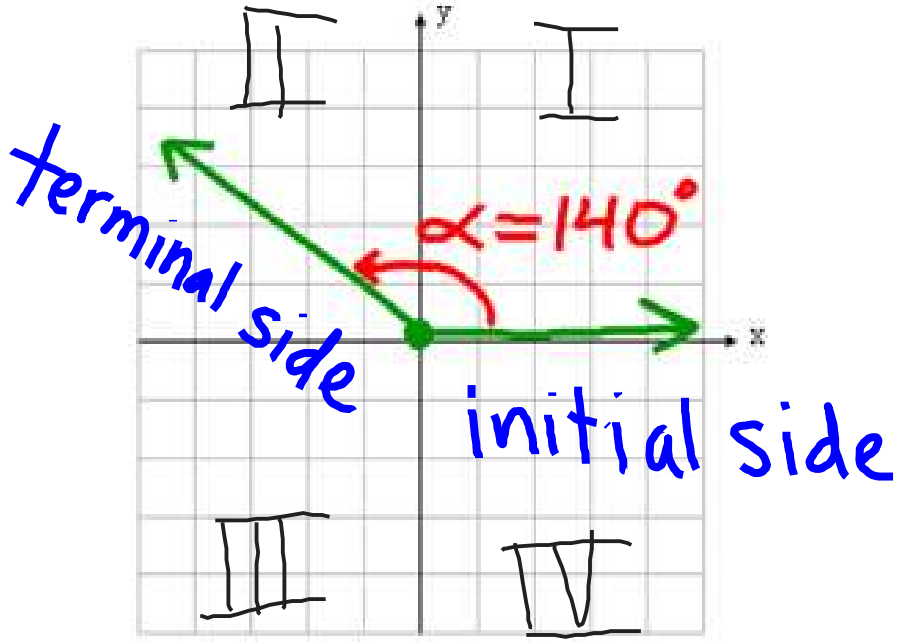
- Sine
- Cosine
- Tangent
- Cosecant
- Secant
- Cotangent

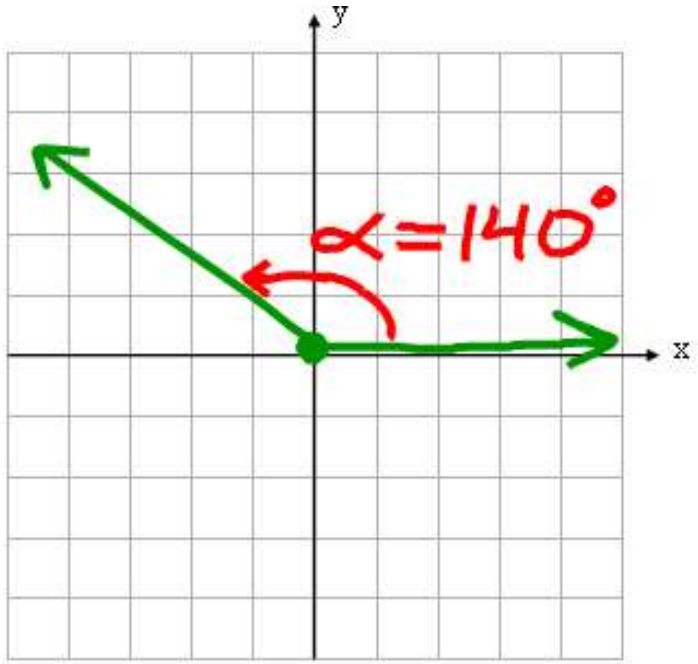


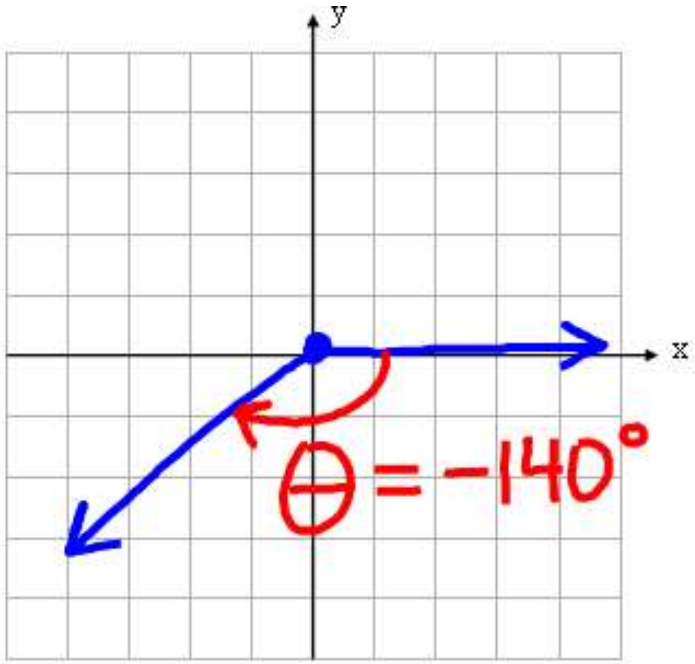
We will complete ch.6 first, followed by ch.5

Notes: 6.1

**Standard Position: An angle that has its vertex at the origin and the initial side is along the positive x-axis.







Positive angle
Counter-clockwise rotation
α = alpha

Negative angle
Clockwise rotation
θ = theta

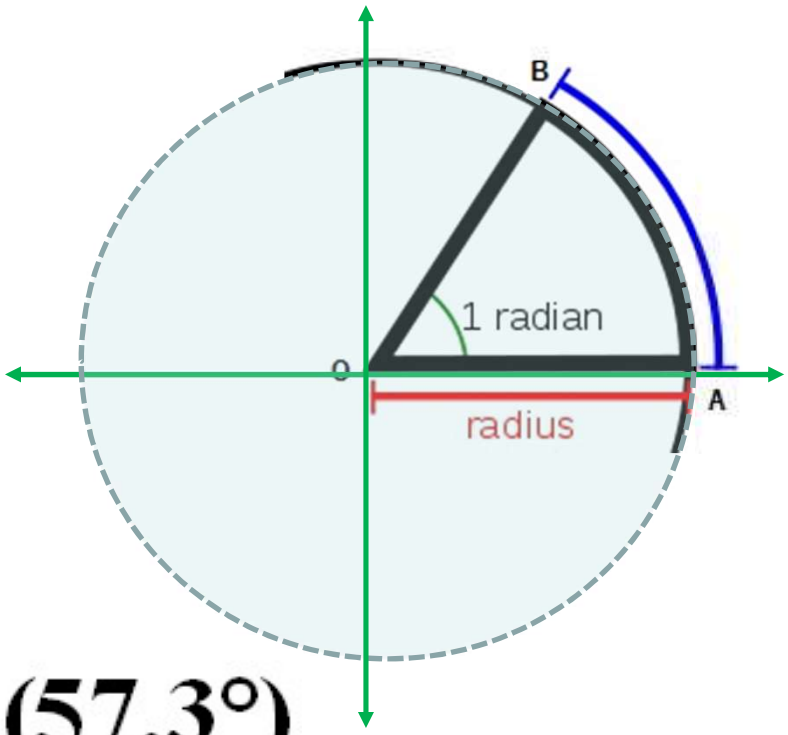
**One full rotation = 360° or 2π radians.

**Angle measurements of more than 360° or 2π represent multiple rotations.

**Coterminal Angles in standard position have the same terminal side. They can be expressed as $\theta \pm 360°(n)$ or $\theta \pm 2\pi(n)$

general angle ↑ ↑ whole number

Radian: **The length of the corresponding arc on a unit circle.**



1 radian = $\frac{180^\circ}{\pi}$ **degrees (57.3°)**

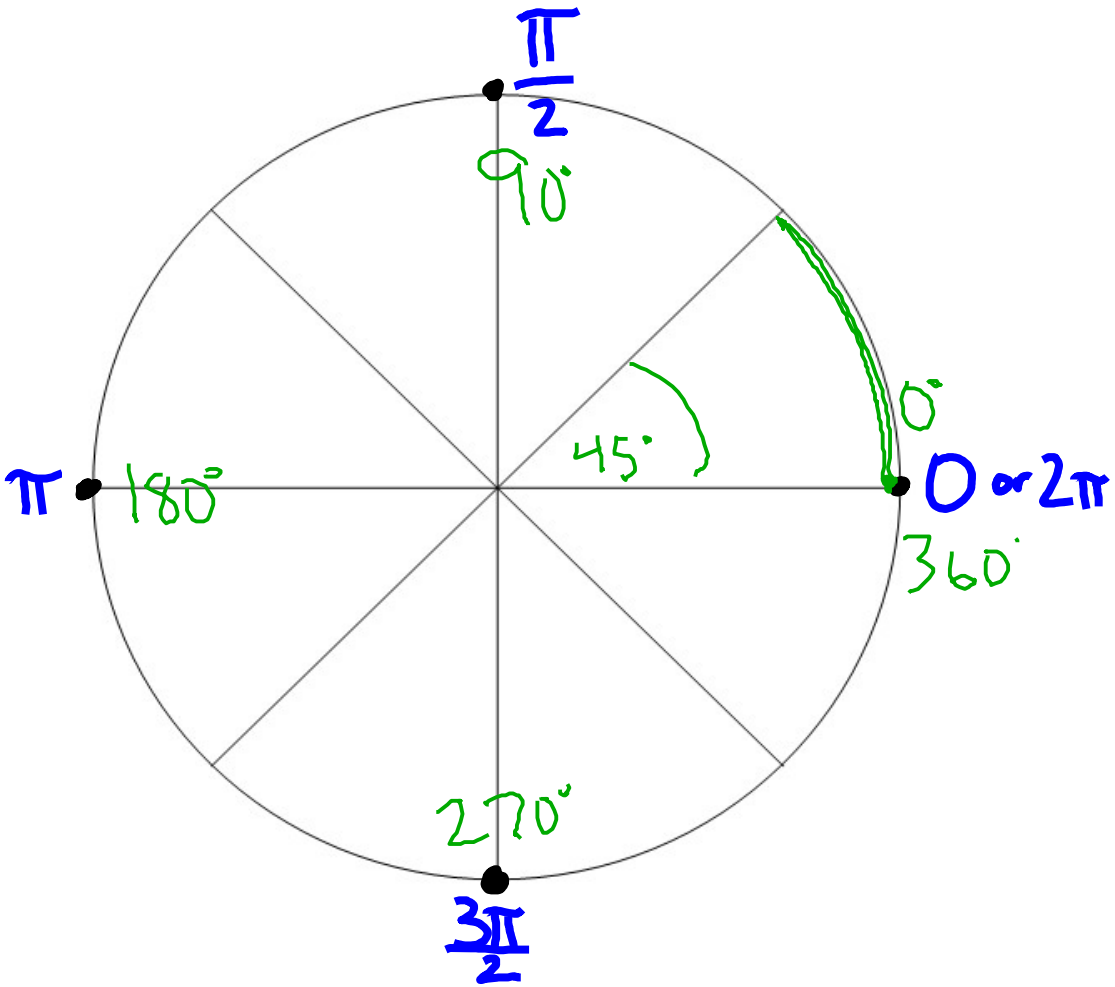
1 degree = $\frac{\pi}{180^\circ}$ **radians (.017)**

basic radian values you should know:

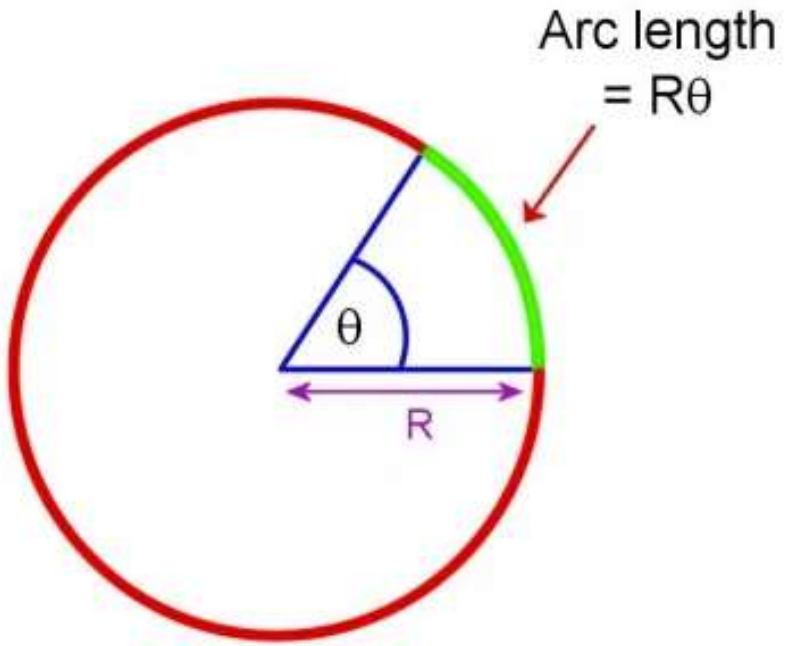
$\frac{\pi}{6} = 30°$

$\frac{\pi}{4} = 45°$

$\frac{\pi}{3} = 60°$



Find the length of an arc on any circle:



$$s = r\theta$$

s* = *arc length

r* = *radius

θ* = *central angle in radians

If the angle is given in degrees, then convert to radians before calculating the arc length.

Today's assignment: **6.1 #6,20,22,30,32**
9-33odd, 41-53odd, 54,55

(NO calculator, no decimals except 21-23, 53-55)

6. Convert from degrees to radians using $\frac{\pi}{180^\circ}$

$$\frac{36^\circ}{1}\left(\frac{\pi}{180^\circ}\right) = \frac{36\pi}{180} \quad \div 9$$

$$= \frac{4\pi}{20} = \boxed{\frac{\pi}{5}}$$

20. Convert from radians to degrees using $\frac{180^\circ}{\pi}$

$$-\frac{3\pi}{2}\left(\frac{180^\circ}{\pi}\right) = \frac{-3(180)}{2}$$

$$= -3(90)$$

$$= \boxed{-270}$$

Today's assignment:

22. Convert from radians to degrees using $\frac{180°}{\pi}$

-2 radians

$$-\frac{2}{1}\left(\frac{180°}{\pi}\right) = \frac{-360°}{\pi}$$

$$\approx \boxed{-114.6°}$$

30. Find two positive and two negative angles that are coterminal to: $135°$

From your notes:

$\theta \pm 360°(n)$ ← whole number

or

$\theta \pm 2\pi(n)$

Today's assignment:

$\theta \pm 360°(n)$ or $\theta \pm 2\pi(n)$

32. Find two positive and two negative angles that are coterminal to: $\frac{11\pi}{6}$

whole number

$\frac{11\pi}{6} \pm 2\pi(1) = \frac{11\pi}{6} \pm \frac{12\pi}{6} =$ $\frac{23\pi}{6}$ and $\frac{-\pi}{6}$

$\frac{2\pi}{1} \cdot \frac{6}{6}$

$\frac{11\pi}{6} \pm 2\pi(2) = \frac{11\pi}{6} \pm \frac{24\pi}{6} =$ $\frac{35\pi}{6}$ and $\frac{-13\pi}{6}$

$\frac{4\pi}{1} \cdot \frac{6}{6}$

no calc

Today's assignment: 6.1 #6,20,22,30,32
9-33odd, 41-53odd, 54,55

(NO calculator, no decimals except 21-23, 53-55)

CH. 4 TEST

- Most problems = **4 points** each

- #4-7, plus continuously compounded word problem = **5 points** each