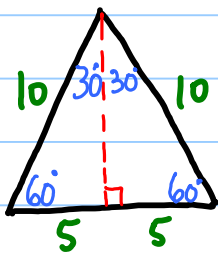
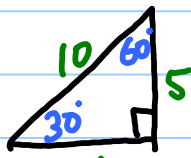


8/31  
FRI

# 4.0 | Special Right Δ's Review



equilateral Δ



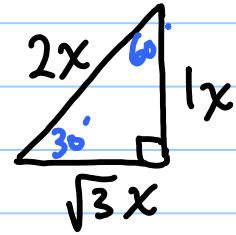
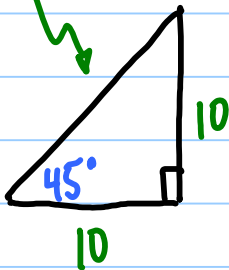
$$10^2 = 5^2 + x^2$$

$$\frac{100 - 25}{75} = x^2$$

$$\sqrt{75} = x$$

$$5\sqrt{3} = x$$

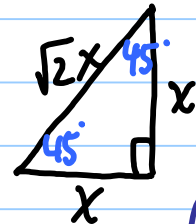
$$10^2 + 10^2 = x^2 \dots 10\sqrt{2} = x$$



hyp: sl: ll

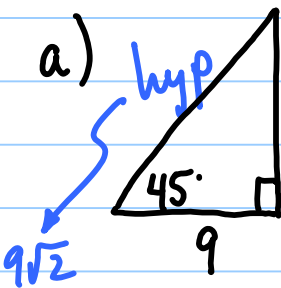
2: 1: \sqrt{3}

30-60-90 rt. Δ

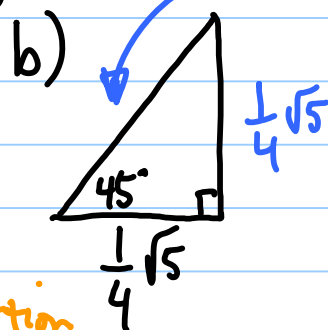


leg: hyp  
1: \sqrt{2}

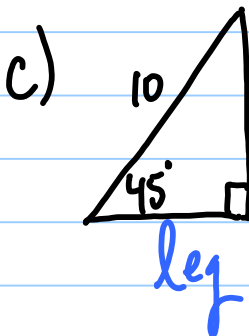
ex) Find the missing sides.



leg → 9



$$\sqrt{2} \cdot \frac{1}{4}\sqrt{5} = \frac{1}{4}\sqrt{10}$$



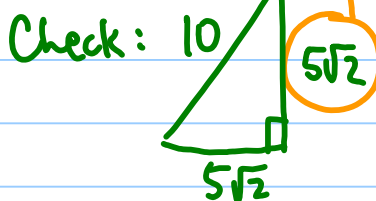
proportion

leg: hyp  
1: \sqrt{2}

$$\frac{x}{1} = \frac{10}{\sqrt{2}}$$

$$\sqrt{2}x = 10$$

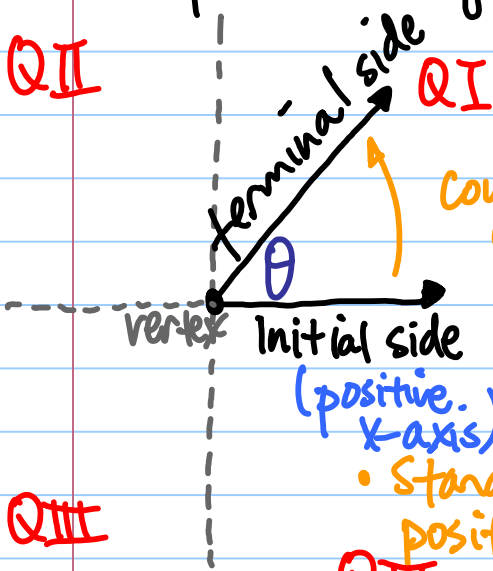
$$x = \frac{10}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{10\sqrt{2}}{2} = 5\sqrt{2}$$



# 4.1 (part 1) Angle & Radian Measures



QII



$\theta$  = "theta" = angle measure

Degrees  $0 \rightarrow 360^\circ$

Counter clockwise (positive angles)

• CW (negative angles)

(positive x-axis)

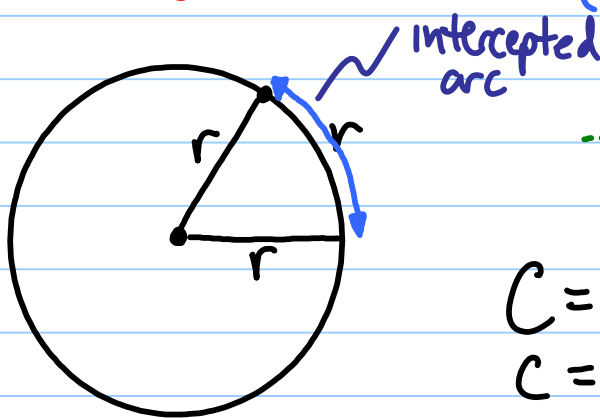
• Standard position

• acute, right, obtuse, straight (angles)

Radians (rad)

QIII

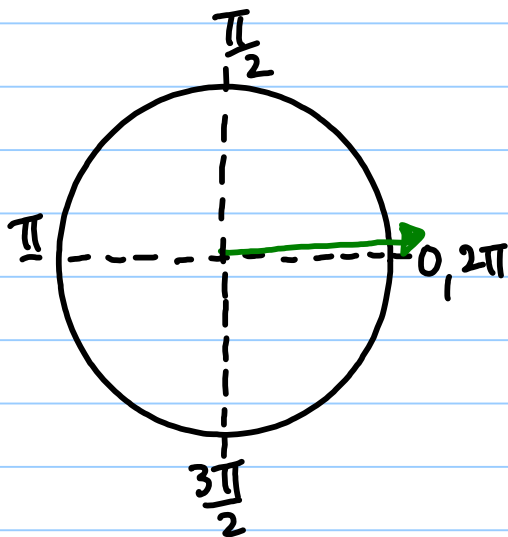
QIV



unit circle  $r=1$

$$C = 2\pi r$$

$$C = 2\pi \cdot 1 \Rightarrow C = 2\pi \text{ radians} \approx 6.28 \text{ radians}$$



Degrees to Radians

mult by  $\frac{\pi}{180^\circ}$

rotation  $2\pi = 360^\circ$

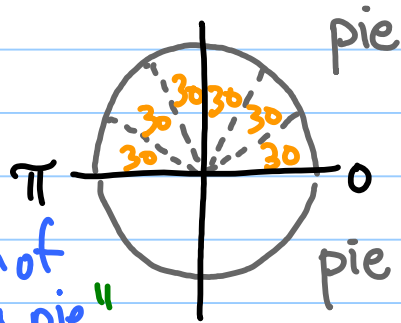
Radians to Degrees

mult by  $\frac{180^\circ}{\pi}$

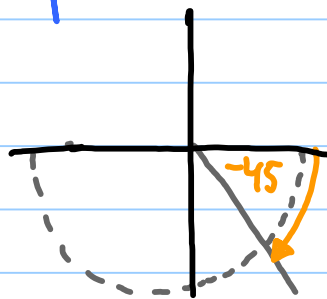
# ex 1) Convert from Degrees to Radians

a)  $30^\circ \cdot \frac{\pi}{180} =$

$\frac{\pi}{6}$



b)  $-45^\circ \cdot \frac{\pi}{180} = -\frac{\pi}{4}$



# ex 2) Radians to Degrees

a)  $\frac{7\pi}{6} \sim 1\pi + \frac{1}{6}\pi$

$\frac{7\pi}{6} \cdot \frac{180}{\pi} = 210^\circ$