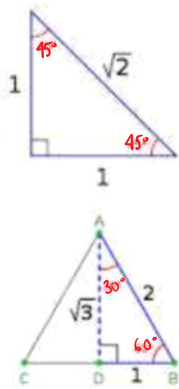


8.2 Trig Ratios pt 2

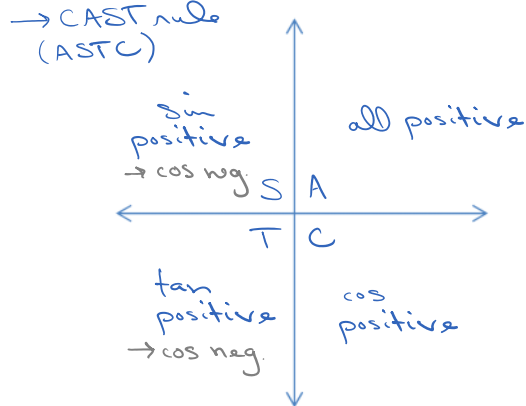
Wednesday, June 3, 2020 3:58 PM

8.2 Trigonometric Ratios of Any Angle θ (part 2)

Special Angle Triangles



Signs of Trig. Ratios by Quadrant (C-A-S-T Rule)

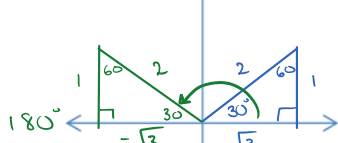


Example 1: Solve for θ (using special angle triangles, exact values)

$\sin \theta = \frac{1}{2}$

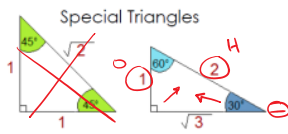
a) $\sin \theta = 0.5, 0^\circ \leq \theta < 360^\circ$

positive in QI and QII



$\theta_R = 30^\circ$

QII: $\theta = 180 - 30$
 $\theta = 150^\circ$



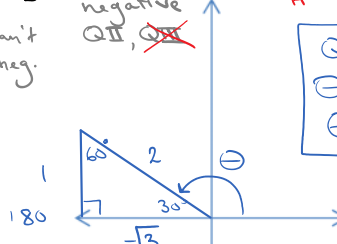
$\cos \theta = \frac{-\sqrt{3}}{2}$

$\cos \theta = \frac{\sqrt{3}}{-2}$

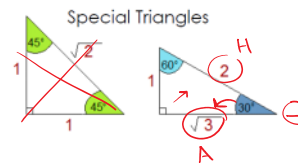
H can't be neg.

b) $\cos \theta = -\frac{\sqrt{3}}{2}, 0^\circ \leq \theta < 180^\circ$

negative QII, QIII

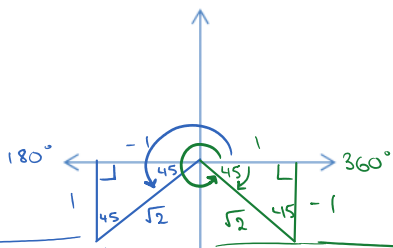


QII: $\theta = 180 - 30$
 $\theta = 150^\circ$



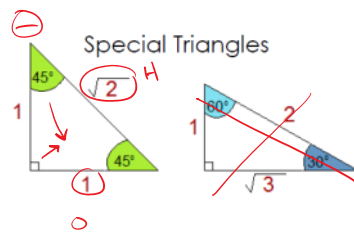
Example 2: Solve for θ $\sin \theta = -\frac{1}{\sqrt{2}}, 0^\circ \leq \theta < 360^\circ$

in QIII & QIV

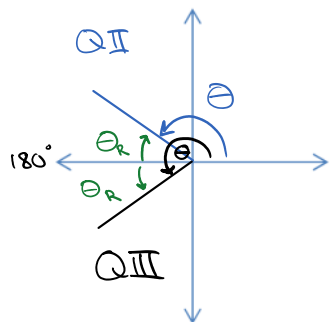


QIII: $\theta = 180 + 45$
 $\theta = 225^\circ$

QIV: $\theta = 360 - 45$
 $\theta = 315^\circ$



Example 3: Given $\cos \theta = -0.6753$, where $0^\circ \leq \theta < 360^\circ$, determine the measure of θ , to the nearest tenth of a degree. *use a calculator.*



in QII & QIII

$$\cos \theta = -0.6753$$

$$\theta = \cos^{-1}(-0.6753)$$

$$\text{QII: } \theta = 132.5^\circ$$

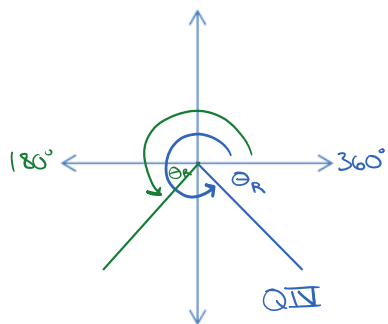
$$\theta_R = 180 - 132.5$$

$$\theta_R = 47.5^\circ$$

$$\text{QIII: } \theta = 180 + 47.5$$

$$\theta = 227.5^\circ$$

Example 4: Given $\sin \theta = -0.8090$, where $0^\circ \leq \theta < 360^\circ$, determine the measure of θ , to the nearest tenth of a degree.



in QIII & QIV

$$\sin \theta = -0.8090$$

$$\theta = \sin^{-1}(-0.8090)$$

$$\theta = -54.0^\circ \rightarrow \theta_R = 54^\circ$$

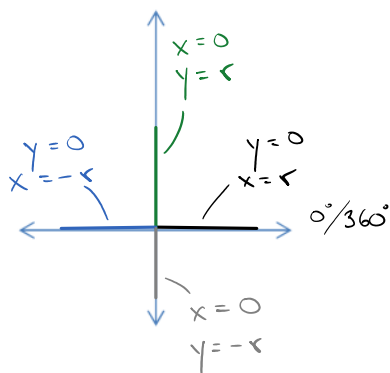
$$\text{QIV: } \theta = 360 - 54$$

$$\theta = 306.0^\circ$$

$$\text{QIII: } \theta = 180 + 54$$

$$\theta = 234.0^\circ$$

Complete the following table. Check by using your calculator.



	$0^\circ/360^\circ$	90°	180°	270°
$\sin = \frac{y}{r}$	$\frac{0}{r} = 0$	1	$\frac{r}{r} = 0$	$\frac{-r}{r} = -1$
$\cos = \frac{x}{r}$	$\frac{r}{r} = 1$	0	$\frac{-r}{r} = -1$	$\frac{r}{r} = 0$
$\tan = \frac{y}{x}$	$\frac{0}{r} = 0$	undefined	$\frac{r}{r} = 0$	$\frac{-r}{0} = \text{undefined}$

