

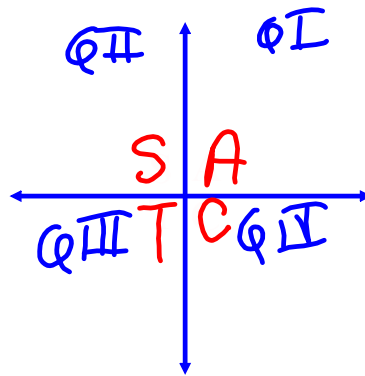
## 12-3C Trigonometric Functions

*Finding exact trigonometric functions for  $\theta$*

- find the reference angle of  $\theta$ .
- find the trigonometric function for the reference angle.
- determine the sign of the function for original angle  $\theta$ . "CAST"

### Signs by Quadrant

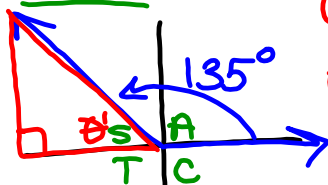
	QI	QII	QIII	QIV
$\sin \theta$ or $\csc \theta$	+	+	-	-
$\cos \theta$ or $\sec \theta$	+	-	-	+
$\tan \theta$ or $\cot \theta$	+	-	+	-



"All Students Take Calah"

Examples: Find the exact values of trigonometric functions.

1.  $\sin 135^\circ$



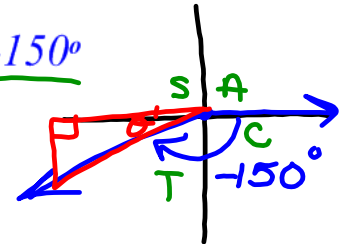
$$\theta' = 180 - 135$$

$$\theta' = 45^\circ$$

$$\sin 135^\circ = \sin 45^\circ \text{ (QII)}$$

$$\sin 135^\circ = +\frac{\sqrt{2}}{2}$$

2.  $\cos -150^\circ$

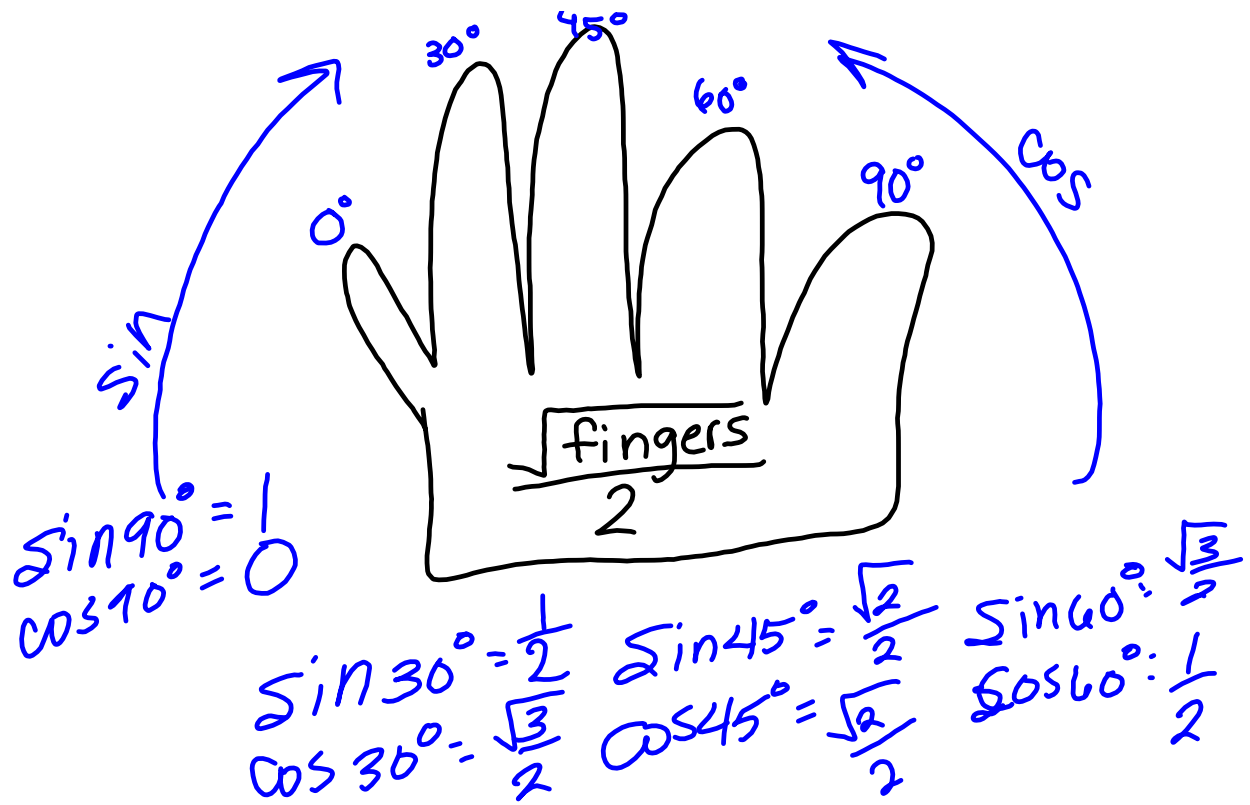


$$\theta' = 180 - 150$$

$$\theta' = 30^\circ$$

$$\cos -150^\circ = \cos 30^\circ \text{ (QII)}$$

$$\cos -150^\circ = -\frac{\sqrt{3}}{2}$$

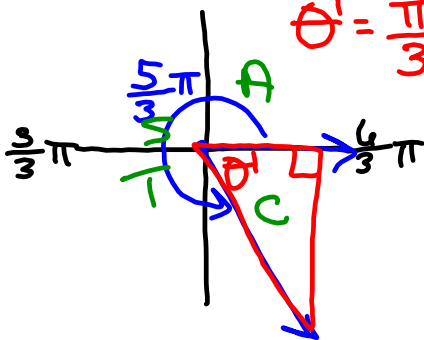


**Examples:** Find the exact values of trigonometric functions.

3.  $\cot \frac{5\pi}{3}$

$\theta' = \frac{6}{3}\pi - \frac{5}{3}\pi$

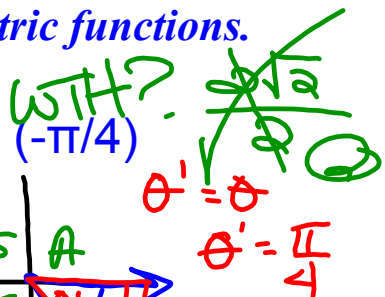
$\theta' = \frac{\pi}{3}$



$\cot \frac{5\pi}{3} = \cot \frac{\pi}{3} \text{ (QIV)}$

$\cot \frac{5\pi}{3} = \frac{\sqrt{3}}{3}$

4.  $\csc(-\pi/4)$



$\csc(-\frac{\pi}{4}) = \csc \frac{\pi}{4} \text{ (QIV)}$

$\csc(-\frac{\pi}{4}) = \sqrt{2}$

P. 811

7-10

24-32



## Attachments

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13-3AB WS Key.notebook