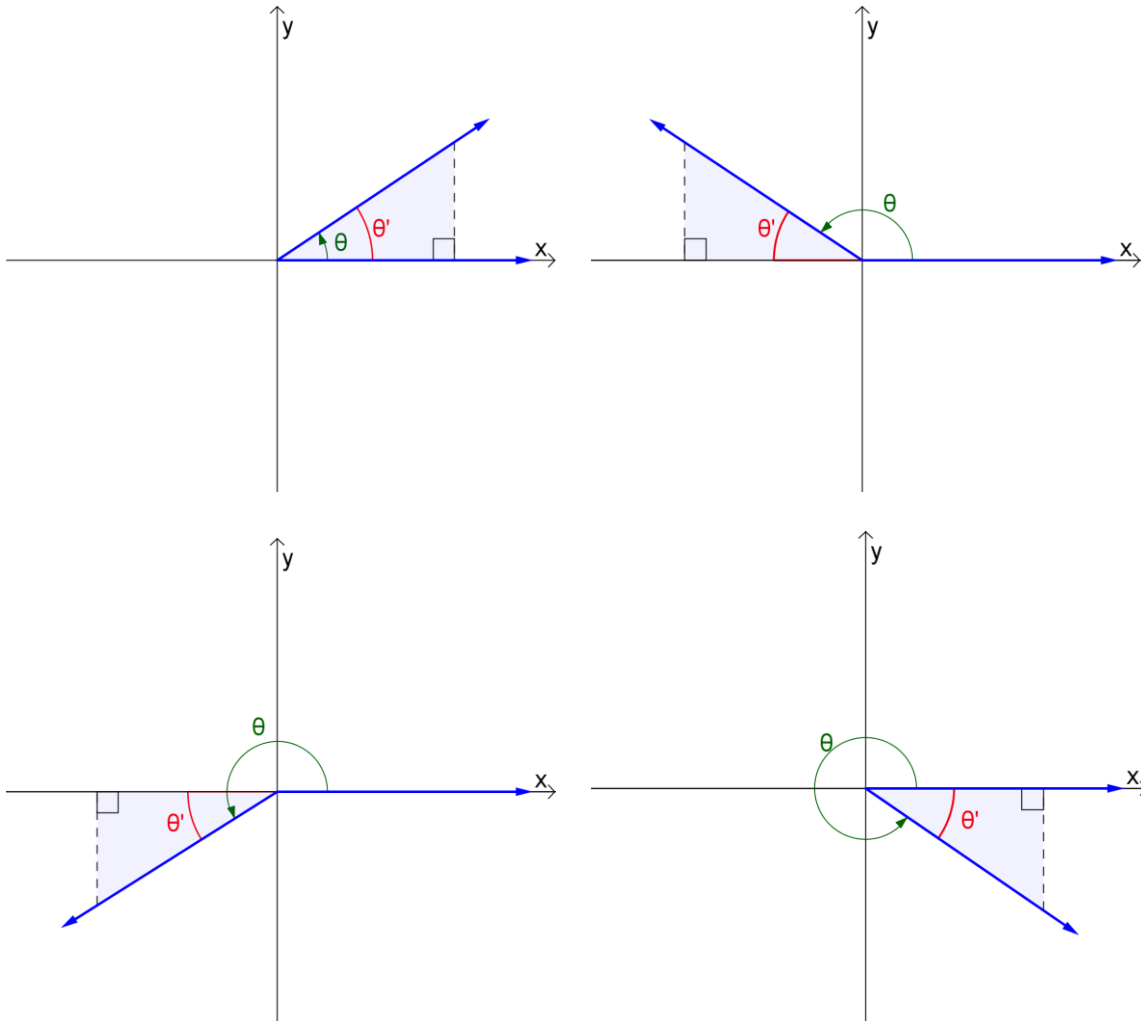


## Trigonometric Functions of Non-Acute Angles and Approximations of Trigonometric Function Values

A **reference angle** ( $\theta'$ ) of  $\theta$  is the positive acute angle made by the terminal side of  $\theta$  and the  $x$ -axis.

**Ex 1.**

Find the reference angle for the following angles.

$294^\circ$

$883^\circ$

**Ex 2.**

Find the exact value of each trigonometric function.

$$\sin 240^\circ$$

$$\cot 495^\circ$$

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**Practice**

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1. Find the reference angle for the following angles.

a)  $212^\circ$

b)  $-80^\circ$

c)  $850^\circ$

2. Find the values of the six trig functions for  $-30^\circ$ .

3. Find exact values for the following.

a)  $\cos 420^\circ$

b)  $\csc(-495^\circ)$

4. Evaluate. (Recall:  $\cot^2 135^\circ = (\cot 135^\circ)^2$ )  
 $\cot^2 135^\circ - \sin 30^\circ + 4 \tan 45^\circ$

5. Use a calculator to find a decimal approximation for each value. Give as many digits as your calculator displays. (Note: be sure to set your calculator for degree mode!)

a)  $\sin 97.978^\circ$

b)  $\sec 36^\circ$

c)  $\tan 41^\circ 15'$

d)  $\cot(-125^\circ)$