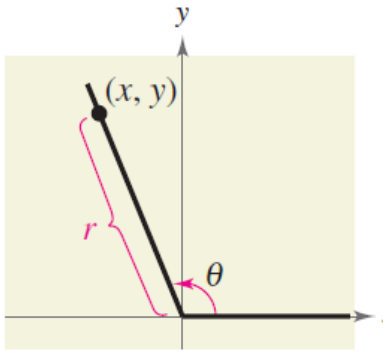
Pg. 312 4.4A – Trigonometric Functions of Any Angle

Reference Angle – the acute angle θ' formed by the terminal side and the x-axis.

Trigonometric Functions of Any Angle

$\sin\theta = \frac{y}{r}$ $\cos\theta = \frac{x}{r}$ $\tan\theta = \frac{y}{x}$

$\csc\theta = \frac{r}{y}$ $\sec\theta = \frac{r}{x}$ $\cot\theta = \frac{x}{y}$

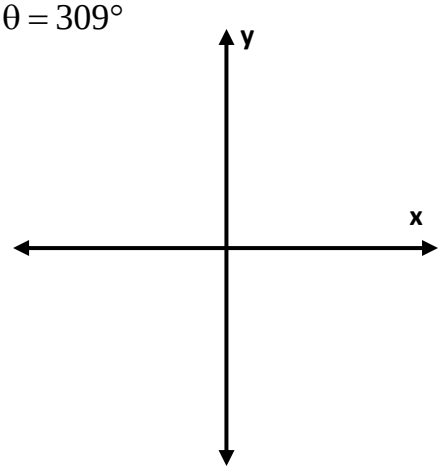


Important:
r is always positive
y is always opposite
x is always adjacent

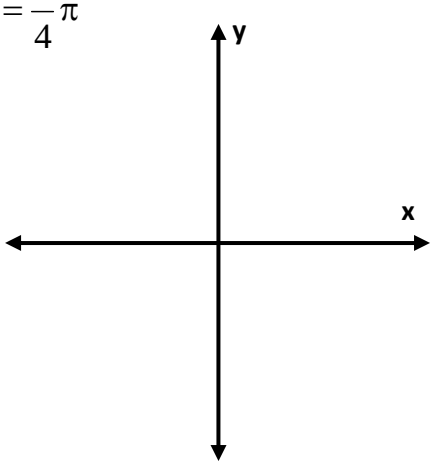
Ex 1:

Find the reference angle θ', and sketch θ and θ' in standard position.

a) $\theta = 309°$



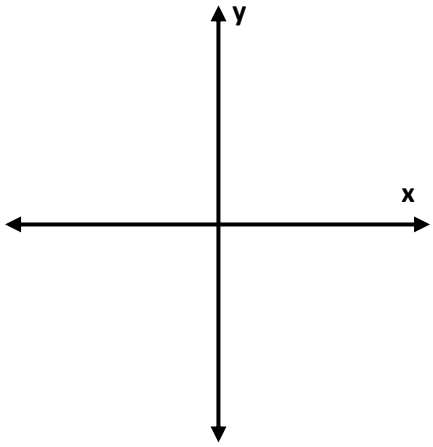
b) $\theta = \frac{7}{4}\pi$



Ex 2:

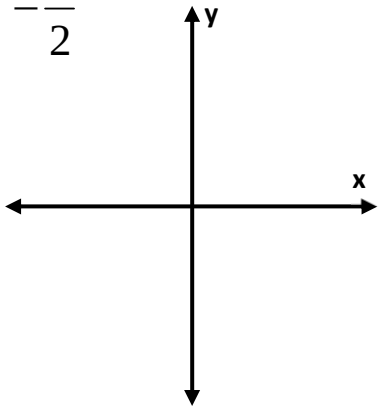
Evaluate the sine, cosine, and tangent of the angle without using a calculator.

$300°$ $\sin 300° =$ $\cos 300° =$ $\tan 300° =$



Ex 3:
Evaluate the sine, cosine, and tangent of the angle without using a calculator.

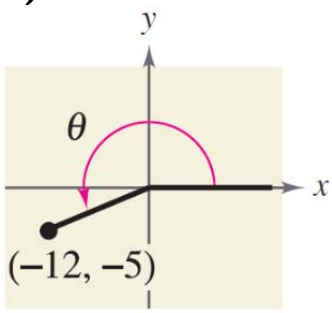
$-\frac{\pi}{2}$



$\sin\left(-\frac{\pi}{2}\right) =$ $\cos\left(-\frac{\pi}{2}\right) =$ $\tan\left(-\frac{\pi}{2}\right) =$

Ex 4:
Determine the exact values of the six trigonometric functions of the angle θ.

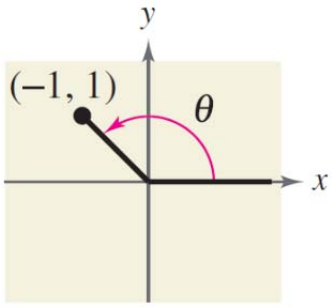
a)



$\sin\theta =$ $\cos\theta =$ $\tan\theta =$

$\csc\theta =$ $\sec\theta =$ $\cot\theta =$

b)



$\sin\theta =$ $\cos\theta =$ $\tan\theta =$

$\csc\theta =$ $\sec\theta =$ $\cot\theta =$

Assignment 4.4A

Pg. 318 **<u>REQUIRED</u>:**Vocab #'s 1-7 ALL Problem Set #'s 1-9 ODD, 29-57 ODD