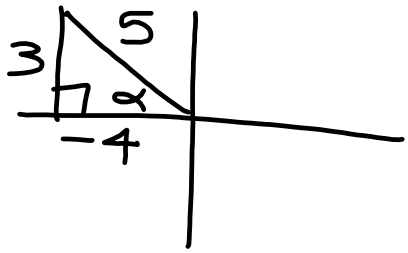
Homework this week:

01: Sign up for Khan Academy with coach code 4CG5S2.

02: Read sections 5.1 and 5.2 in your textbook

03: Textbook problems
5.1 #1, 2, 7-18 all, 31-73 odd
5.2: #1-6 all; 15-41 odd; 59-75 odd (NO CALCULATOR!)
This will mostly be completed in class and will be due this Friday.
See syllabus for proper formatting of written homework assignments.

36. Given that $\cos\alpha = -\frac{4}{5}$ and $\alpha \in QII$,
find the other 5 trigonometric function values of α.



$\sin\alpha = 3/5$
$\tan\alpha = -3/4$
$\sec\alpha = -5/4$
$\csc\alpha = 5/3$
$\cot\alpha = -4/3$

The unit circle and function values of 30°, 45°, and 60° reference angles

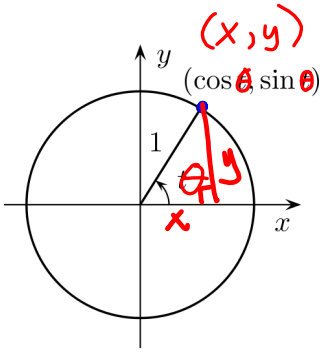
unit circle: $x^2+y^2=1$

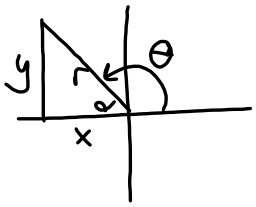
radius $r=1$

center $(0,0)$

$(x-h)^2+(y-k)^2=r^2$

center: (h,k) ; radius: r



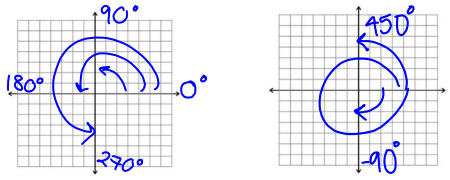


$\sin\theta=\frac{y}{r}$ $y=r\sin\theta$

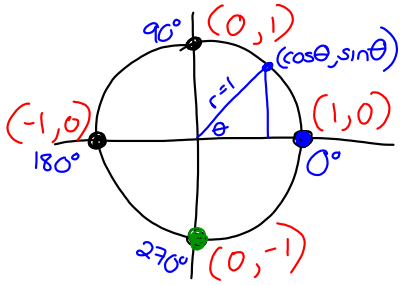
$\cos\theta=\frac{x}{r}$ $x=r\cos\theta$

What about quadrantal angles?

An angle whose terminal side falls on an axis is called a quadrantal angle.



$\frac{opp}{adj}=\frac{\frac{opp}{hyp}}{\frac{adj}{hyp}}$



Reciprocal Identities

$\csc x=\frac{1}{\sin x}$, $\sin x=\frac{1}{\csc x}$

$\sec x=\frac{1}{\cos x}$, $\cos x=\frac{1}{\sec x}$

$\cot x=\frac{1}{\tan x}$, $\tan x=\frac{1}{\cot x}$

Ratio Identities

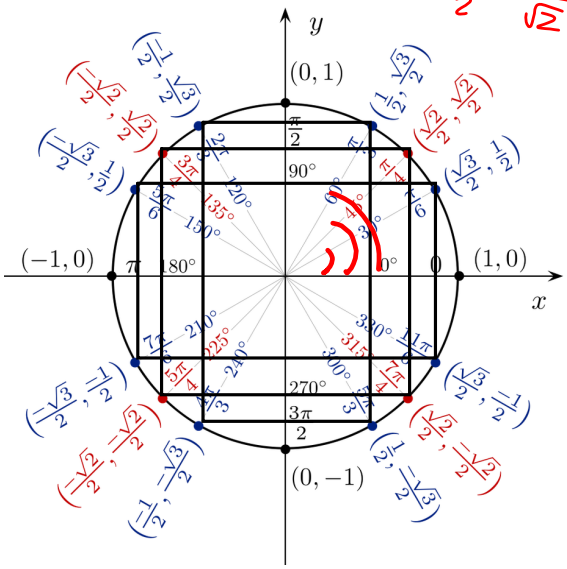
$\tan x=\frac{\sin x}{\cos x}$, $\cot x=\frac{\cos x}{\sin x}$

$\tan 0^\circ=\frac{\sin 0^\circ}{\cos 0^\circ}=\frac{0}{1}=0$

$\sec 270^\circ=\frac{1}{\cos 270^\circ}=\frac{1}{0}$ undef.

The Unit Circle

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



Common angles: (memorize!)

$\frac{\pi}{6} = 30°$

$\frac{\pi}{4} = 45°$

$\frac{\pi}{3} = 60°$

Note:

$\frac{k\pi}{6} \rightarrow 30°\ ref.\angle$

$\frac{k\pi}{4} \rightarrow 45°\ ref.\angle$

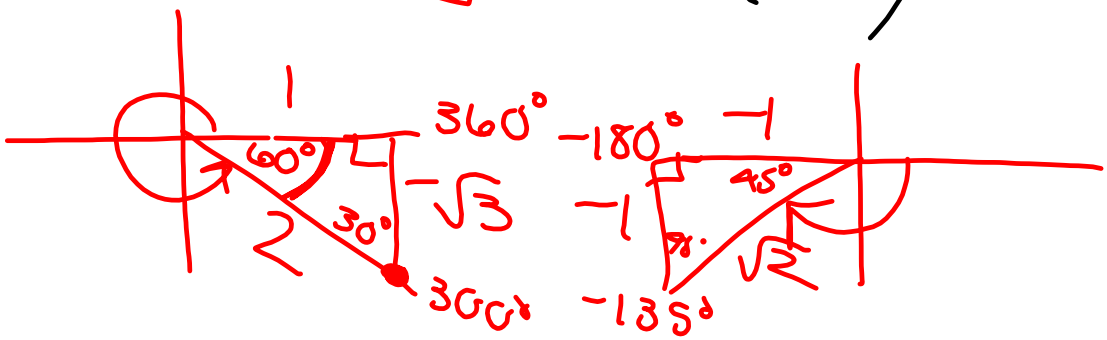
$\frac{k\pi}{3} \rightarrow 60°\ ref.\angle$

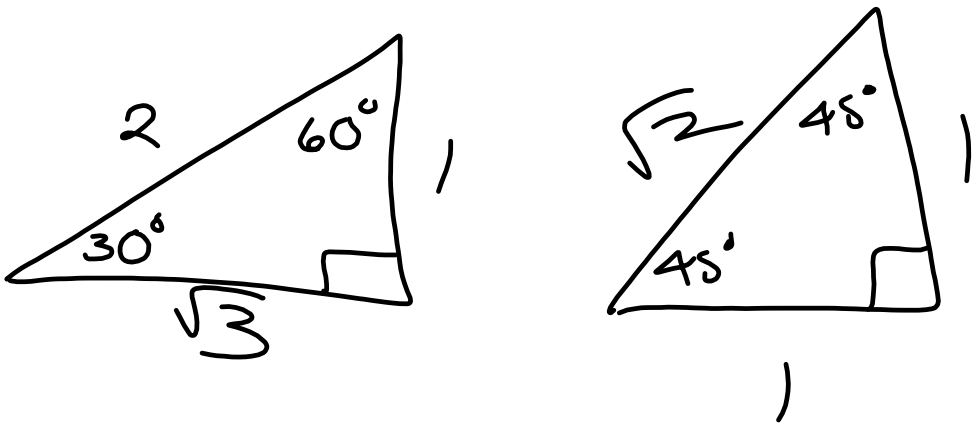
$\frac{k\pi}{2} \rightarrow 90°\ or\ 270°$

$k\pi \rightarrow 0°\ for\ k\ even;$
$180°\ for\ k\ odd$

Find the trig function value of the given angle (note that they all have either a 30°, 45°, or 60° reference angle OR are quadrantal angles).

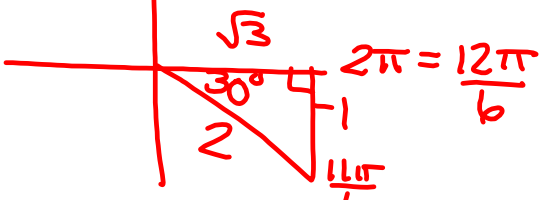
$\tan 300° = -\sqrt{3}$ $\quad \sec(-135°) = -\sqrt{2}$



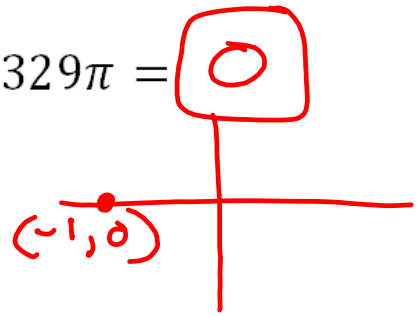


Evaluate the trigonometric function of an angle given in radians

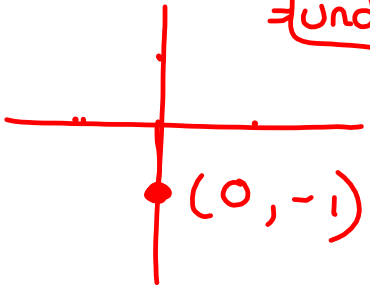
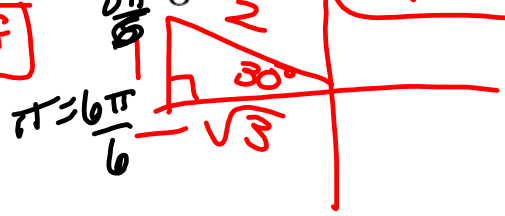
$\cos\frac{11\pi}{6} =$ $\frac{\sqrt{3}}{2}$



$\sin 329\pi =$ 0



$\tan\frac{7\pi}{2} = \frac{\sin\frac{7\pi}{2}}{\cos\frac{7\pi}{2}} = \frac{-1}{0}$ = undef



$\sec\frac{5\pi}{6} =$ $\frac{-2}{\sqrt{3}}$