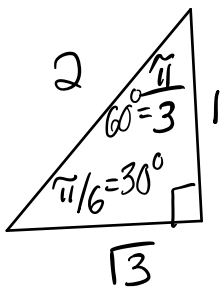
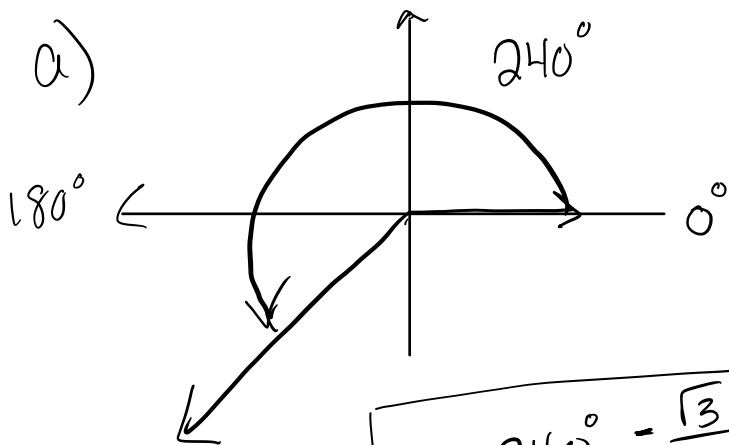


11/16/2021 Lesson 17: Review Trig + Graph of trig functions

Ex Find  $\sin x$ ,  $\cos x$  +  $\tan x$  for The following angles:

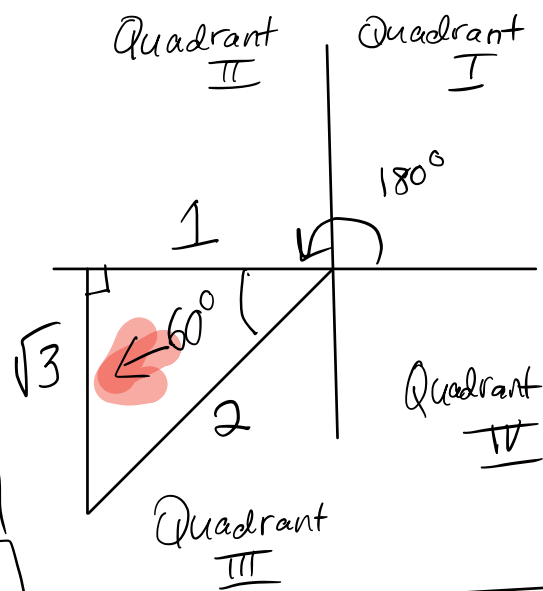
a)  $x = 240^\circ$       b)  $x = -\frac{9\pi}{4}$



$$\sin 240^\circ = -\frac{\sqrt{3}}{2}$$

$$\cos 240^\circ = -\frac{1}{2}$$

$$\tan 240^\circ = +\frac{\sqrt{3}}{1}$$



**SOHCAHTOA**

$\sin x$	S	A	all +
$\csc x$			
$\tan x$	T	C	$\cos x$ +
$\cot x$			$\sec x$

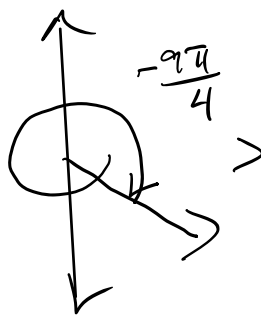
b)  $x = -\frac{9\pi}{4}$

$\pi = 180^\circ$   
 $\frac{\pi}{4} = 45^\circ$

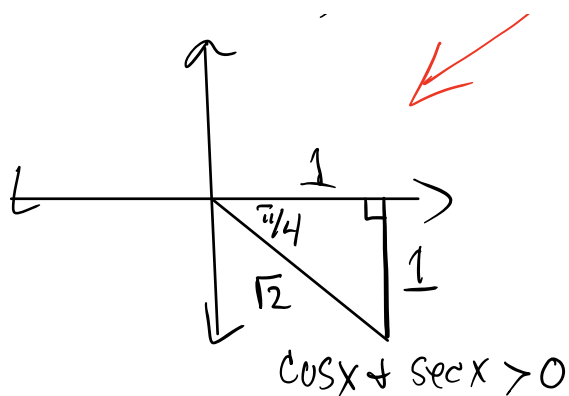
$$\sin\left(-\frac{9\pi}{4}\right) = -\frac{1}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$$

$$\cos\left(-\frac{9\pi}{4}\right) = +\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

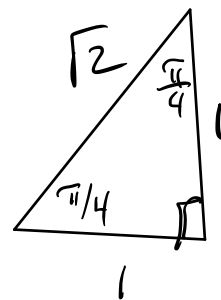
$$\tan\left(-\frac{9\pi}{4}\right) = \frac{1}{1} = 1$$



$2\pi = \frac{8\pi}{4}$



SOHCAHTOA



Def: Let  $f$  be one of the functions

$$f(x) = a \sin(bx+c) \text{ or } f(x) = a \cos(bx+c)$$

The number  $|a|$  is called the amplitude,

The number  $|\frac{2\pi}{b}|$  is the period and

the number  $-\frac{c}{b}$  is called the phase

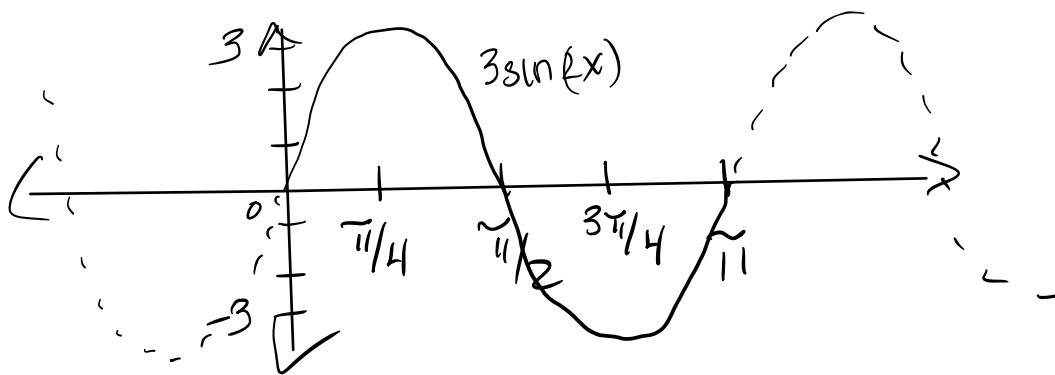
shift.

Ex Find the amplitude the period & the phase shift and sketch the graph over one period.

a)  $f(x) = 3 \sin(2x)$       c)  $f(x) = -2 \cos(2x + \pi)$

a)  $f(x) = 3 \sin(2x)$   
 $|a| = |3| = 3$  amplitude

$|\frac{2\pi}{b}| = (\frac{2\pi}{2}) = \pi$   
 period



b)  $-2 \cos(2x + \pi)$

reflect in x-axis  $|a| = |-2| = 2$  amplitude

$|2a/b| = 2\pi/2 = \pi$  period

phase shift  $-\frac{c}{b} = -\frac{\pi}{2}$

shift  $\frac{\pi}{2}$  units left

