

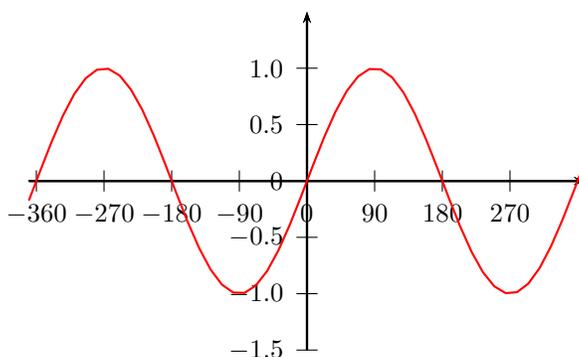
MATH 7: HANDOUT 24
TRIGONOMETRY 4: TRIGONOMETRIC GRAPHS.

GRAPH OF SINE

By looking at the values of sine as we go around the trigonometric circle, we find out a few facts like:

- $\sin 0 = \sin \pi = 0$
- $\sin x$ increases from 0 to $\frac{\pi}{2}$.
- At $x = \frac{\pi}{2}$, $\sin x$ reaches it's maximum value, 1.
- At $x = \frac{3\pi}{2}$, $\sin x$ reaches it's minimum value, -1 .
- $\sin(x + 2\pi) = \sin x$.

We can see all of these facts clearly in the graph of the function $\sin x$:



HOMEWORK

1. Fill out the following table. Make sure you understand how to convert degrees to radians, and use the values of sine and cosine that you already know!

Degrees	Radians	sine	cosine
180°	π	0	-1
45°			
60°			
120°			
150°			
210°			
315°			
	$2\pi/3$		
	$9\pi/4$		
	$5\pi/6$		
	$-5\pi/4$		
	$11\pi/3$		
	$7\pi/6$		
		$\sqrt{3}/2$	$1/2$
		$\sqrt{2}/2$	$-\sqrt{2}/2$
		$-1/2$	$-\sqrt{3}/2$

2. Using the trigonometric circle, show that $\cos x = \sin(x + \pi/2)$ for any angle x . Then use this fact and the graph of the sine function to construct (draw) the graph of the cosine function.