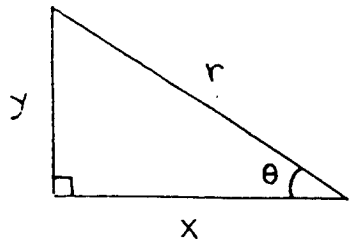
Math 17A
Vogler
Trigonometry



1. $\sin^2\theta + \cos^2\theta = 1$

2. $1 + \tan^2\theta = \sec^2\theta$

3. $1 + \cot^2\theta = \csc^2\theta$

4. $\sin 2\theta = 2\cos\theta \sin\theta$

5. $\cos 2\theta = 2\cos^2\theta - 1$

   $= 1 - 2\sin^2\theta$

   $= \cos^2\theta - \sin^2\theta$

$\cos\theta = x / r$

$\sin\theta = y / r$

$\tan\theta = y / x$

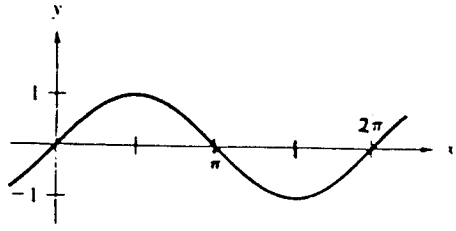
$\sec\theta = r / x$

$\csc\theta = r / y$

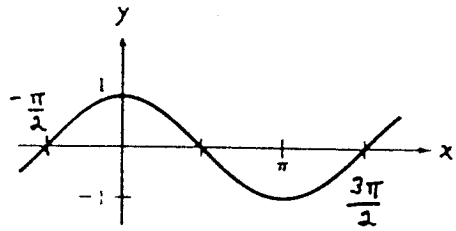
$\cot\theta = x / y$

degrees	radians (θ)	$\cos\theta$	$\sin\theta$	$\tan\theta$
0°	0	1	0	0
30°	$\pi/6$	$\sqrt{3}/2$	1/2	$1/\sqrt{3}$
45°	$\pi/4$	$\sqrt{2}/2$	$\sqrt{2}/2$	1
60°	$\pi/3$	1/2	$\sqrt{3}/2$	$\sqrt{3}$
90°	$\pi/2$	0	1	undefined

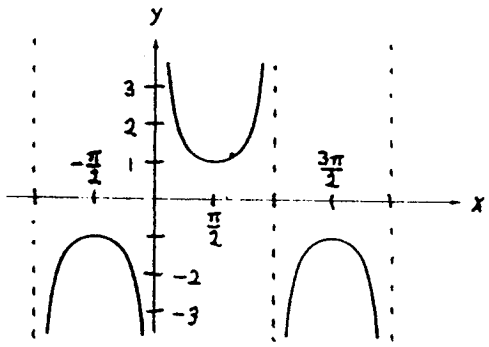
Please commit these graphs to memory.



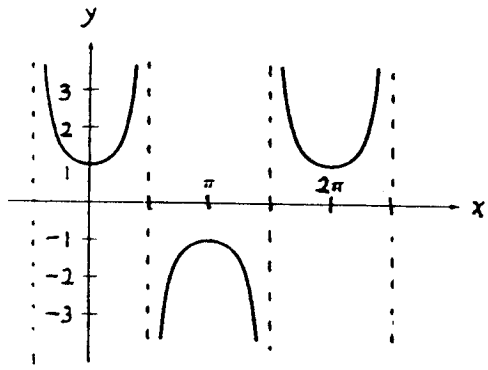
$y = \sin x$



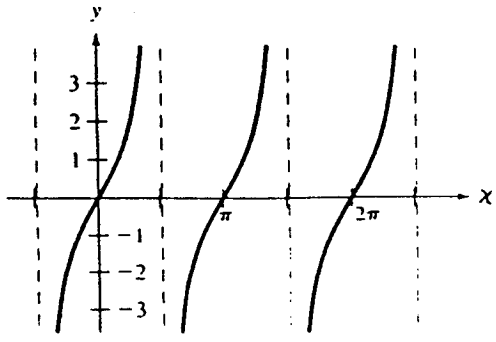
$y = \cos x$



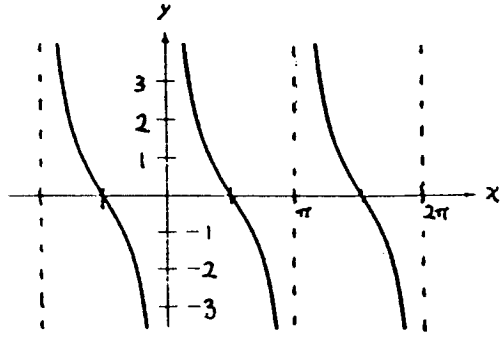
$y = \csc x = \frac{1}{\sin x}$



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



$y = \tan x$



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

COSINE AND SINE VALUES ON THE UNIT CIRCLE