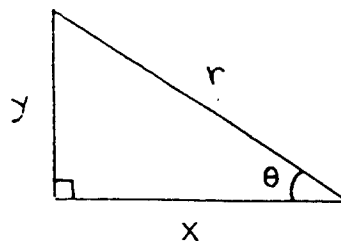


Math 21A
Vogler
Trigonometry



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

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

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

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

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

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

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

$$\cos \theta = x / r$$

$$\sin \theta = y / r$$

$$\tan \theta = y / x$$

$$\sec \theta = r / x$$

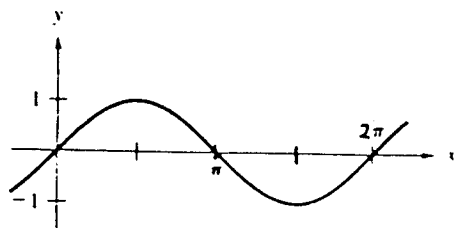
$$\csc \theta = r / y$$

$$\cot \theta = x / y$$

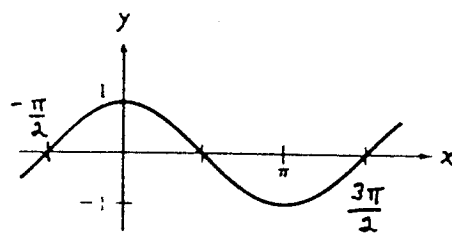
θ

degrees	radians	$\cos \theta$	$\sin \theta$	$\tan \theta$
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

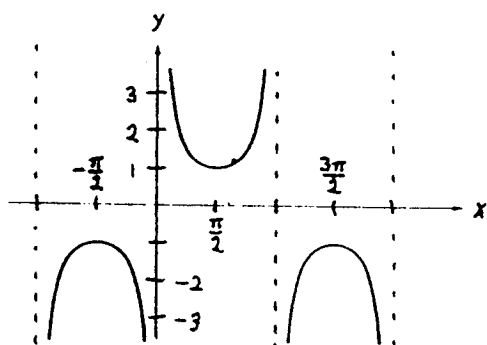
Please commit these graphs. to memory.



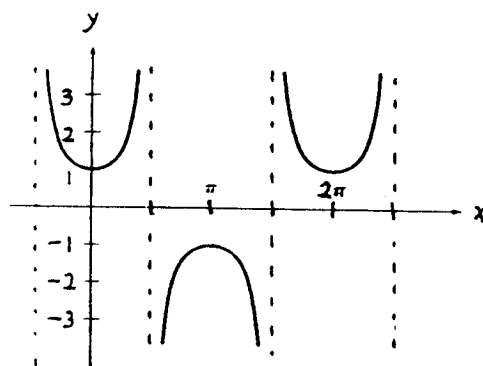
$$y = \sin x$$



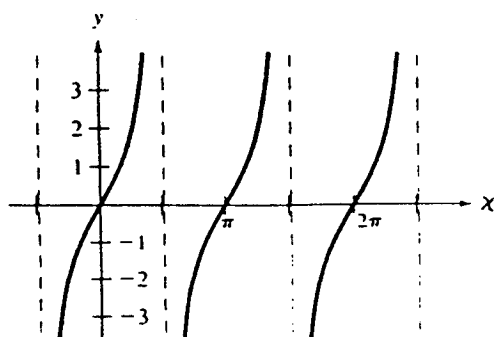
$$y = \cos x$$



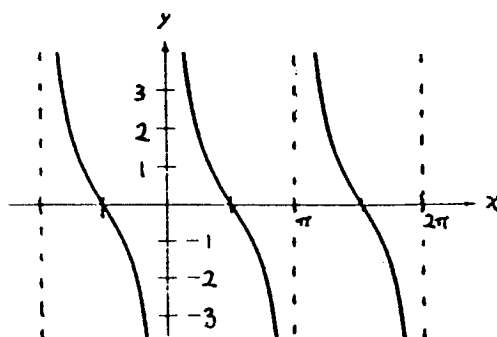
$$y = \csc x = \frac{1}{\sin x}$$



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



$$y = \tan x$$



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

COSINE AND SINE VALUES ON THE UNIT CIRCLE

