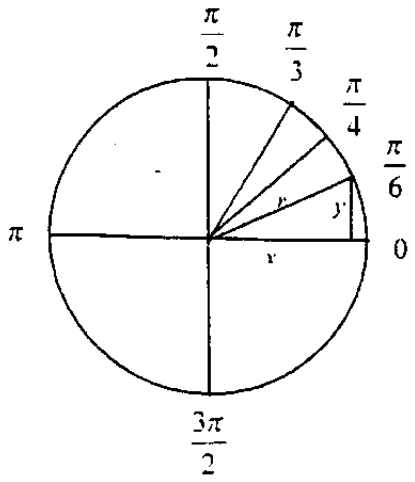
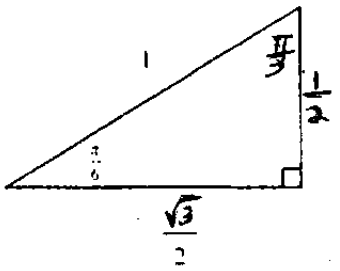
Review of Trigonometry Memorize!

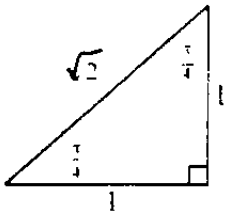


$$\sin\theta = \frac{y}{r} = \frac{1}{\csc\theta}$$

$$\cos\theta = \frac{x}{r} = \frac{1}{\sec\theta}$$

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





θ	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	Q II	Q III	Q IV	Symmetry
$\sin\theta$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	pos	neg	neg	odd
$\cos\theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	neg	neg	pos	even
$\tan\theta$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	undefined	neg	pos	neg	odd

Identities:

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

2. $1 + \tan^2\theta = \sec^2\theta$, (dividing both sides of #1 by $\cos^2\theta$ and rearranging terms)

3. $1 + \cot^2\theta = \csc^2\theta$ (dividing both sides of #1 by $\sin^2\theta$ and rearranging terms)

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

5.* $\cos 2\theta = \cos^2\theta - \sin^2\theta$

6. $\cos 2\theta = 2\cos^2\theta - 1$ (substituting $1 - \cos^2\theta$ for $\sin^2\theta$)

7. $\cos 2\theta = 1 - 2\sin^2\theta$ (substituting $1 - \sin^2\theta$ for $\cos^2\theta$)

8. $\cos^2\theta = \frac{1 + \cos 2\theta}{2}$ (solving equation 6 for $\cos^2\theta$)

9. $\sin^2\theta = \frac{1 - \cos 2\theta}{2}$ (solving equation 7 for $\sin^2\theta$)