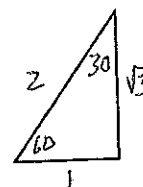
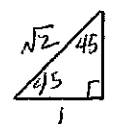
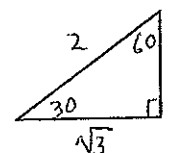


Math 11/12/13 Trig Knowledge Assumed

- Definition of $\sin \alpha$ in terms of sides of a triangle: $\frac{\text{opposite}}{\text{hypotenuse}}$
- Definition of $\cos \alpha$ in terms of sides of a triangle: $\frac{\text{adjacent}}{\text{hypotenuse}}$
- Definition of $\tan \alpha$ in terms of sides of a triangle: $\frac{\text{opposite}}{\text{adjacent}}$

degrees	radians	$\sin \alpha$	$\cos \alpha$	$\tan \alpha$
0°	0	0	1	0
30°	$\pi/6$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$
4. 45°	$\pi/4$	$\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$	$\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$	1
60°	$\pi/3$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$
90°	$\pi/2$	1	0	undefined (or ∞)
180°	π	0	-1	0



- $\sin 2x$ (in terms of trig functions of x) $= 2 \sin x \cos x$
- $\sin^2 x$ (in terms of trig functions of $2x$) $= \frac{1 - \cos 2x}{2}$.
- $\cos^2 x$ (in terms of trig functions of $2x$) $= \frac{1 + \cos 2x}{2}$.
- The standard trig version of the pythagorean theorem (i.e., an inter-relation of $\sin x$ and $\cos x$) is:
 $\sin^2 x + \cos^2 x = 1$
- Alternative forms of the trig version of the pythagorean theorem are:
 $1 + \tan^2 x = \sec^2 x$ and $1 + \cot^2 x = \csc^2 x$.
- $\sin(-x) = -\sin x$.
- $\cos(-x) = \cos x$.