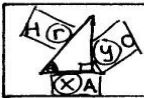
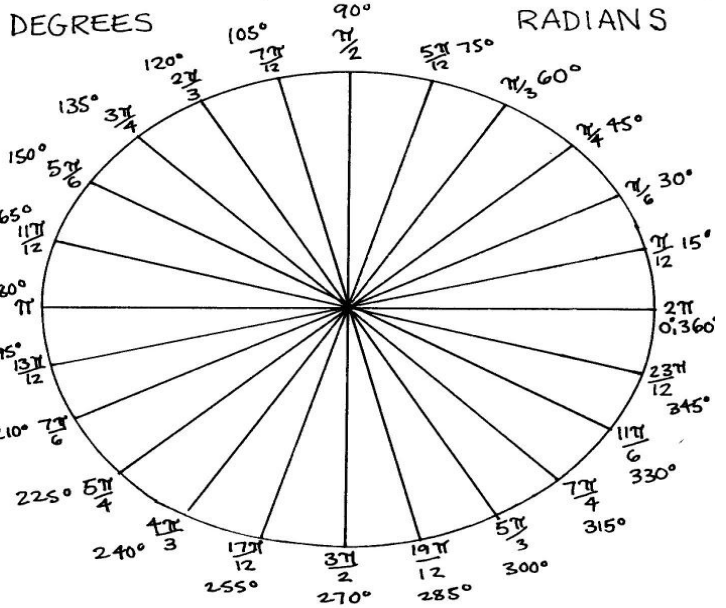


Trigonometry

Deg.	Rad.	Sine	Cosine	Tangent
30	$\pi/6$	0.5	$\sqrt{3}/2$	$1/\sqrt{3}$
45	$\pi/4$	$1/\sqrt{2}$	$1/\sqrt{2}$	1
60	$\pi/3$	$\sqrt{3}/2$	0.5	$\sqrt{3}$
90	$\pi/2$	1	0	UND.
120	$2\pi/3$	$\sqrt{3}/2$	-0.5	$-\sqrt{3}$
135	$3\pi/4$	$1/\sqrt{2}$	$-1/\sqrt{2}$	-1
150	$5\pi/6$	0.5	$-\sqrt{3}/2$	$-1/\sqrt{3}$
180	π	0	-1	0
210	$7\pi/6$	-0.5	$-\sqrt{3}/2$	$1/\sqrt{3}$
225	$5\pi/4$	$-1/\sqrt{2}$	$-1/\sqrt{2}$	1
240	$4\pi/3$	$-\sqrt{3}/2$	-0.5	$\sqrt{3}$
270	$3\pi/2$	-1	0	UND.
300	$5\pi/3$	$-\sqrt{3}/2$	0.5	$-\sqrt{3}$
315	$7\pi/4$	$-1/\sqrt{2}$	$1/\sqrt{2}$	-1
330	$11\pi/6$	-0.5	$\sqrt{3}/2$	$-1/\sqrt{3}$
0, 360	2π	0	1	0

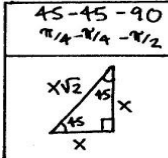
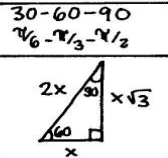


SOH CAH TOA
Y/R X/R Y/X

Degrees - Radians $n^\circ = n^\circ \left(\frac{\pi}{180} \text{ rad} \right)$;
Radians - Degrees $n \text{ rad} = n \text{ rad} \left(\frac{180}{\pi} \right)$

Def. of Radian
 $s = r\theta$
s - Arc Length

All Smart Trig Classes
 $\sin \oplus$ All \oplus
 $\tan \oplus$ Cos \oplus



DERIVATIVES OF BASIC TRIG FUNCTIONS IF x is in radians
 $\frac{d}{dx} \sin x = \cos x$ $\frac{d}{dx} \cos x = -\sin x$ $\frac{d}{dx} \sec x = \sec x \tan x$
 $\frac{d}{dx} \tan x = \sec^2 x$ $\frac{d}{dx} \cot x = -\csc^2 x$ $\frac{d}{dx} \csc x = -\csc x \cot x$
 $\frac{d}{dx} \sin u = \cos u \cdot u'$ $\frac{d}{dx} \tan u = \sec^2 u \cdot u'$ $\frac{d}{dx} \sec u = \sec u \tan u \cdot u'$
 $\frac{d}{dx} \cos u = -\sin u \cdot u'$ $\frac{d}{dx} \cot u = -\csc^2 u \cdot u'$ $\frac{d}{dx} \csc u = -\csc u \cot u \cdot u'$

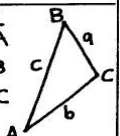
TRIG IDENTITIES

$\sin^2 x + \cos^2 x = 1$
 $\tan^2 x + 1 = \sec^2 x$
 $1 + \cot^2 x = \csc^2 x$
 $\sin 2x = 2 \sin x \cos x$
 $\cos 2x = \cos^2 x - \sin^2 x$
 $\cos 2x = 2 \cos^2 x - 1$
 $\cos 2x = 1 - 2 \sin^2 x$
 $\tan 2x = \frac{2 \tan x}{1 - \tan^2 x}$

$\sin\left(\frac{x}{2}\right) = \pm \sqrt{\frac{1 - \cos x}{2}}$
 $\cos\left(\frac{x}{2}\right) = \pm \sqrt{\frac{1 + \cos x}{2}}$
 $\tan\left(\frac{x}{2}\right) = \pm \sqrt{\frac{1 - \cos x}{1 + \cos x}}$
 $\sin^2 x = \frac{1 - \cos 2x}{2}$
 $\cos^2 x = \frac{1 + \cos 2x}{2}$

$\sin(x+y) = \sin x \cos y + \cos x \sin y$ $\sin\left(\frac{\pi}{2} - \theta\right) = \cos \theta$
 $\sin(x-y) = \sin x \cos y - \cos x \sin y$ $\cos\left(\frac{\pi}{2} - \theta\right) = \sin \theta$
 $\cos(x+y) = \cos x \cos y - \sin x \sin y$ $\tan\left(\frac{\pi}{2} - \theta\right) = \cot \theta$
 $\cos(x-y) = \cos x \cos y + \sin x \sin y$
 $\tan(x+y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}$
 $\tan(x-y) = \frac{\tan x - \tan y}{1 + \tan x \tan y}$

THE LAW OF COSINES
 $a^2 = b^2 + c^2 - 2bc \cos A$
 $b^2 = a^2 + c^2 - 2ac \cos B$
 $c^2 = a^2 + b^2 - 2ab \cos C$



$\csc x = \frac{1}{\sin x}$ $\sec x = \frac{1}{\cos x}$ $\tan x = \frac{\sin x}{\cos x}$ $\cot x = \frac{1}{\tan x} = \frac{\cos x}{\sin x}$

THE LAW OF SINES
 $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$