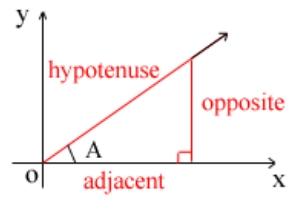


$\sin A = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{1}{\csc A}$

$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{1}{\sec A}$

$\csc A = \frac{\text{hypotenuse}}{\text{opposite}} = \frac{1}{\sin A}$

$\sec A = \frac{\text{hypotenuse}}{\text{adjacent}} = \frac{1}{\cos A}$

$\tan A = \frac{\text{opposite}}{\text{adjacent}} = \frac{\sin A}{\cos A} = \frac{\sec A}{\csc A} = \frac{1}{\cot A}$

$\cot A = \frac{\text{adjacent}}{\text{opposite}} = \frac{\cos A}{\sin A} = \frac{\csc A}{\sec A} = \frac{1}{\tan A}$

$\sin^2 A + \cos^2 A = 1$

$\tan^2 A + 1 = \sec^2 A$

$1 + \cot^2 A = \csc^2 A$

$\sin(-A) = -\sin A$

$\cos(-x) = \cos x$

$\tan(-x) = -\tan x$

$\cot(-x) = -\cot x$

$\sec(-x) = \sec x$

$\csc(-x) = -\csc x$

$\tan A \cdot \cot A = 1$

$\sin A \cdot \csc A = 1$

$\cos A \cdot \sec A = 1$

$\sin 2A = 2 \sin A \cos A$

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

$= 1 - \sin^2 A$

$= 2\cos^2 A - 1$

$\tan 2A = \frac{2\tan A}{1 - \tan^2 A}$

$\cot 2A = \frac{\cot^2 A - 1}{2\cot A}$

$\sin^2 \alpha = \frac{1}{2}(1 - \cos 2\alpha)$

$\cos^2 \alpha = \frac{1}{2}(1 + \cos 2\alpha)$

$\tan^2 \alpha = \frac{1 - \cos 2\alpha}{1 + \cos 2\alpha}$

$\sin \frac{\alpha}{2} = \pm\sqrt{\frac{1 - \cos\alpha}{2}}$ $\quad \cos \frac{\alpha}{2} = \pm\sqrt{\frac{1 + \cos\alpha}{2}}$

$\tan \frac{\alpha}{2} = \pm\sqrt{\frac{1 - \cos\alpha}{1 + \cos\alpha}} = \frac{1 - \cos\alpha}{\sin\alpha} = \frac{\sin\alpha}{1 + \cos\alpha}$

$\sin\alpha \sin\beta = \frac{1}{2}\cos(\alpha - \beta) - \frac{1}{2}\cos(\alpha + \beta)$

$\cos\alpha \cos\beta = \frac{1}{2}\cos(\alpha - \beta) + \frac{1}{2}\cos(\alpha + \beta)$

$\sin\alpha \cos\beta = \frac{1}{2}\sin(\alpha + \beta) + \frac{1}{2}\sin(\alpha - \beta)$

$\cos\alpha \sin\beta = \frac{1}{2}\sin(\alpha + \beta) - \frac{1}{2}\sin(\alpha - \beta)$

$\sin\alpha + \sin\beta = 2\sin\frac{1}{2}(\alpha + \beta)\cos\frac{1}{2}(\alpha - \beta)$

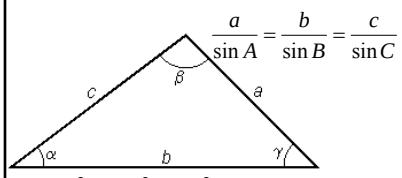
$\sin\alpha - \sin\beta = 2\cos\frac{1}{2}(\alpha + \beta)\sin\frac{1}{2}(\alpha - \beta)$

$\cos\alpha + \cos\beta = 2\cos\frac{1}{2}(\alpha + \beta)\cos\frac{1}{2}(\alpha - \beta)$

$\cos\alpha - \cos\beta = -2\sin\frac{1}{2}(\alpha + \beta)\sin\frac{1}{2}(\alpha - \beta)$

$\tan\alpha + \tan\beta = \frac{\sin(\alpha + \beta)}{\cos\alpha \cos\beta}$

$\tan\alpha - \tan\beta = \frac{\sin(\alpha - \beta)}{\cos\alpha \cos\beta}$

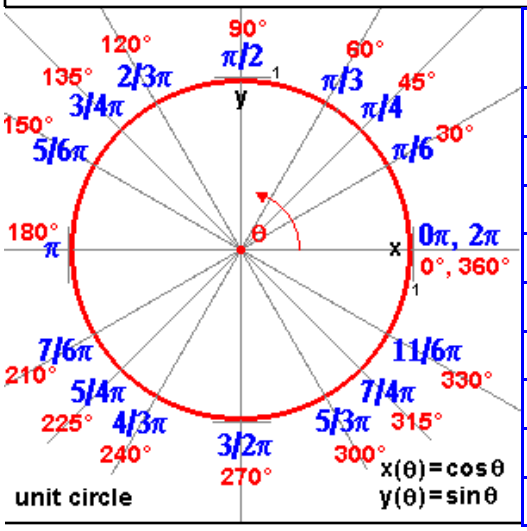


$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

$a^2 = b^2 + c^2 - 2bc\cos A$

$b^2 = a^2 + c^2 - 2ac\cos B$

$c^2 = a^2 + b^2 - 2ab\cos C$



X degrees	X radians	Sin x	Cos x	Tan x	Cot x	Sec x	Csc x
0	0	0	1	0	-	1	-
30º	π/6	1/2	√3 / 2	√3 / 3	√3	2√3 / 3	2
45º	π/4	√2/2	√2/2	1	1	√2	√2
60º	π/3	√3 / 2	1/2	√3	√3 /3	2	2√3 /3
90º	π/2	1	0	-	0	-	1
120º	2π/3	√3 / 2	-1/2	-√3	-√3 /3	-2	2√3 /3
135º	3π/4	√2/2	-√2/2	-1	-1	-√2	√2
150º	5π/6	1/2	-√3/2	-√3 /3	-√3	-2√3 /3	2
180º	π	0	-1	0	-	-1	-