FORMULE TRIGONOMETRICE

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

$$\sin 2\alpha = 2\sin\alpha\cos\alpha$$

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

$$\cos 2\alpha = 2\cos^2\alpha - 1$$

$$\cos 2\alpha = 1 - 2\sin^2\alpha$$

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

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

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

$$1 + ctg^2\alpha = \frac{1}{\sin^2\alpha}$$

$$\sin(-\alpha) = -\sin\alpha$$

$$\cos(-\alpha) = \cos\alpha$$

$$tg(-\alpha) = -tg\,\alpha$$

$$ctg(-\alpha) = -ctg\,\alpha$$

$$\sin(a+b) = \sin a \cdot \cos b + \sin b \cos a$$

$$\sin(a-b) = \sin a \cos b - \sin b \cos a$$

$$\cos(a \pm b) = \cos a \cos b \mp \sin a \sin b$$

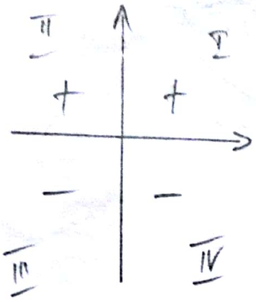
$$\sin x = \frac{2tg\frac{x}{2}}{1+tg^2\frac{x}{2}} = \frac{2t}{1+t^2}$$

$$\cos x = \frac{1-tg^2\frac{x}{2}}{1+tg^2\frac{x}{2}} = \frac{1-t^2}{1+t^2}$$

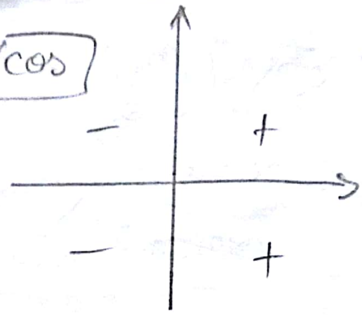
$$\cos^2 x = \frac{1+\cos 2x}{2}$$

$$\sin^2 x = \frac{1-\cos 2x}{2}$$

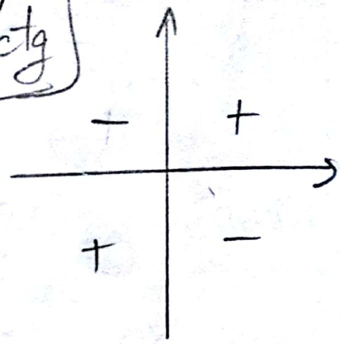
sin



cos



tg/ctg



α	0°	30°	45°	60°	90°	120°	135°	150°	180°
α (rad)	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π
$\sin\alpha$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\cos\alpha$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{3}}{2}$	-1
$tg\,\alpha$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	/	$-\sqrt{3}$	-1	$-\frac{\sqrt{3}}{3}$	0
$ctg\,\alpha$	/	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$	0	$-\frac{\sqrt{3}}{3}$	-1	$-\sqrt{3}$	/

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DERIVATE

$c' = 0$

$x' = 1$

$(x^n)' = n \cdot x^{n-1}$

$(\sqrt{x})' = \frac{1}{2\sqrt{x}}$

$(\sqrt[n]{x})' = \frac{1}{n\sqrt[n]{x^{n-1}}}$

$(\ln x)' = \frac{1}{x}$

$(\log_a x)' = \frac{1}{x \ln a}$

$(e^x)' = e^x$

$(a^x)' = a^x \ln a$

$(\sin x)' = \cos x$

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

$(tg\, x)' = \frac{1}{\cos^2 x}$

$(ctg\, x)' = -\frac{1}{\sin^2 x}$

$(\arcsin x)' = \frac{1}{\sqrt{1-x^2}}$

$(\arccos x)' = -\frac{1}{\sqrt{1-x^2}}$

$(arctg\, x)' = \frac{1}{1+x^2}$

$(arcctg\, x)' = -\frac{1}{1+x^2}$

$(u^v)' = u^v \cdot \ln u \cdot v' + v \cdot u^{v-1} \cdot u'$

$(f^{-1})'(y_0) = \frac{1}{f'(x_0)}$; $y_0 = f(x_0)$

$f(x) = y \Leftrightarrow f^{-1}(y) = x$

$(f \cdot g)' = f' g + f \cdot g'$

$\left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}$