Formulario de Trigonometría

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$$sen(\theta) = \frac{C.Op.}{Hip.}, \quad cos(\theta) = \frac{C.Ady.}{Hip.}$$
$$tan(\theta) = \frac{C.Op.}{C.Ady.} = \frac{sen(\theta)}{cos(\theta)}, \quad cot(\theta) = \frac{C.Ady.}{C.Op.} = \frac{cos(\theta)}{sin(\theta)} = \frac{1}{tan(\theta)}$$
$$sec(\theta) = \frac{Hip.}{C.Ady} = \frac{1}{cos(\theta)}, \quad csc(\theta) = \frac{Hip.}{C.Op.} = \frac{1}{sen(\theta)}$$

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$$sen^2(x) + cos^2(x) = 1, \quad tan^2(x) + 1 = sec^2(x), \quad cot^2(x) + 1 = csc^2(x)$$

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$$sen(x \pm y) = sen(x)cos(y) \pm cos(x)sen(y)$$
$$cos(x \pm y) = cos(x)cos(y) \mp sen(x)sen(y)$$
$$sen(2x) = 2sen(x)cos(x)$$
$$cos(2x) = cos^2(x) - sen^2(x) = 2cos^2(x) - 1 = 1 - 2sen^2(x)$$
$$tan(2x) = \frac{2tan(x)}{1 - tan^2(x)}$$
$$(cos(x) + isen(x))^n = cos(nx) + isen(nx). \quad i = \sqrt{-1}. \text{ Con } n = 3 \text{ llegas a:}$$
$$sen(3x) = 3sen(x) - 4sen^3(x), \quad cos(3x) = 4cos^3(x) - 3cos(x).$$
$$sen^2(x) = \frac{1 - cos(2x)}{2}, \quad cos^2(x) = \frac{1 + cos(2x)}{2}$$
$$sen(x/2) = \pm\sqrt{\frac{1 - cos(x)}{2}}, \quad cos(x/2) = \pm\sqrt{\frac{1 + cos(x)}{2}}. \quad \text{Signo depende de } x.$$

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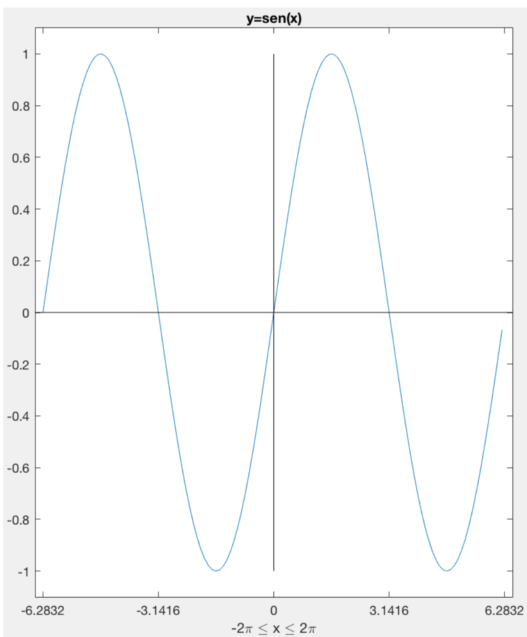
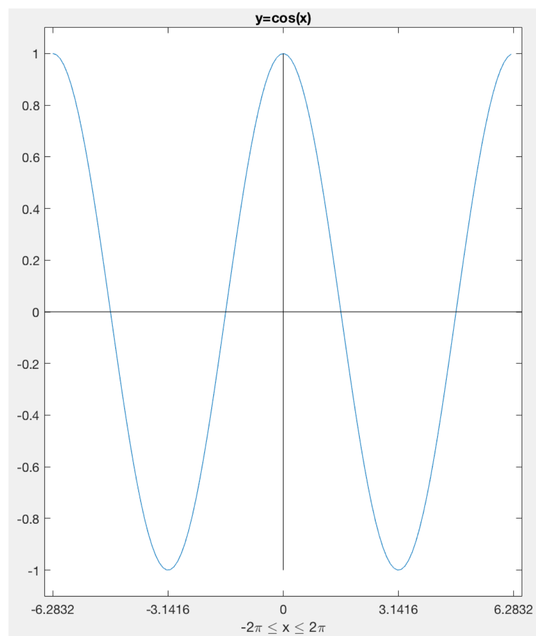
$$sen(x) + sen(y) = 2sen\Big(\frac{x+y}{2}\Big)cos\Big(\frac{x-y}{2}\Big)$$
$$cos(x) + cos(y) = 2cos\Big(\frac{x+y}{2}\Big)cos\Big(\frac{x-y}{2}\Big)$$
$$sen(x)sen(y) = \frac{1}{2}\Big(cos(x-y) - cos(x+y)\Big), \quad cos(x)cos(y) = \frac{1}{2}\Big(cos(x-y) + cos(x+y)\Big)$$
$$sen(x)cos(y) = \frac{1}{2}\Big(sen(x-y) + sen(x+y)\Big)$$
$$sen(-x) = -sen(x), \quad cos(-x) = cos(x)$$
$$sen(\frac{\pi}{2} - x) = cos(x), \quad cos(\frac{\pi}{2} - x) = sin(x), \quad sen(\pi - x) = sen(x)$$

Mas propiedades: `https://en.wikipedia.org/wiki/List_of_trigonometric_identities`

Valores de Funciones Trigonométricas							
Angulo en grados	0	30	45	60	90	180	270
Angulo en radianes	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$
sen	0	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	1	0	-1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	0	-1	0
$tan = \frac{sen}{cos}$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	no existe	0	no existe





Teorema de Pitágoras: $a^2 + b^2 = c^2$.

Círculo unitario:
Coordenadas del punto $(x, y) = (cos(\theta), sen(\theta))$.
Por ejemplo si el ángulo elegido es $\theta = 90° = \frac{\pi}{2}$ entonces estaremos en el punto $(0, 1)$, y concluimos que $cos(90°) = 0, sen(90°) = 1$.
Si el ángulo elegido es $\theta = 45° = \frac{\pi}{4}$ entonces estaremos en el punto $(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}})$, y concluimos que $cos(45°) = \frac{1}{\sqrt{2}}, sen(45°) = \frac{1}{\sqrt{2}}$.