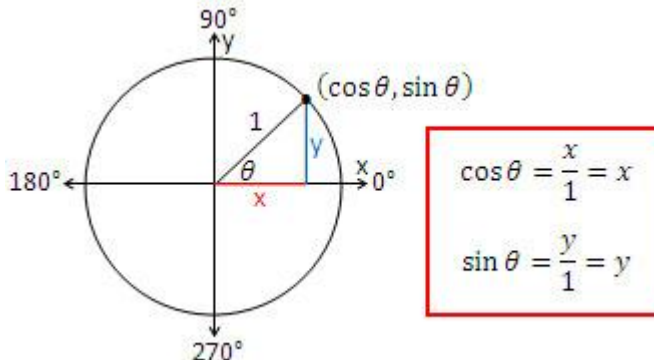
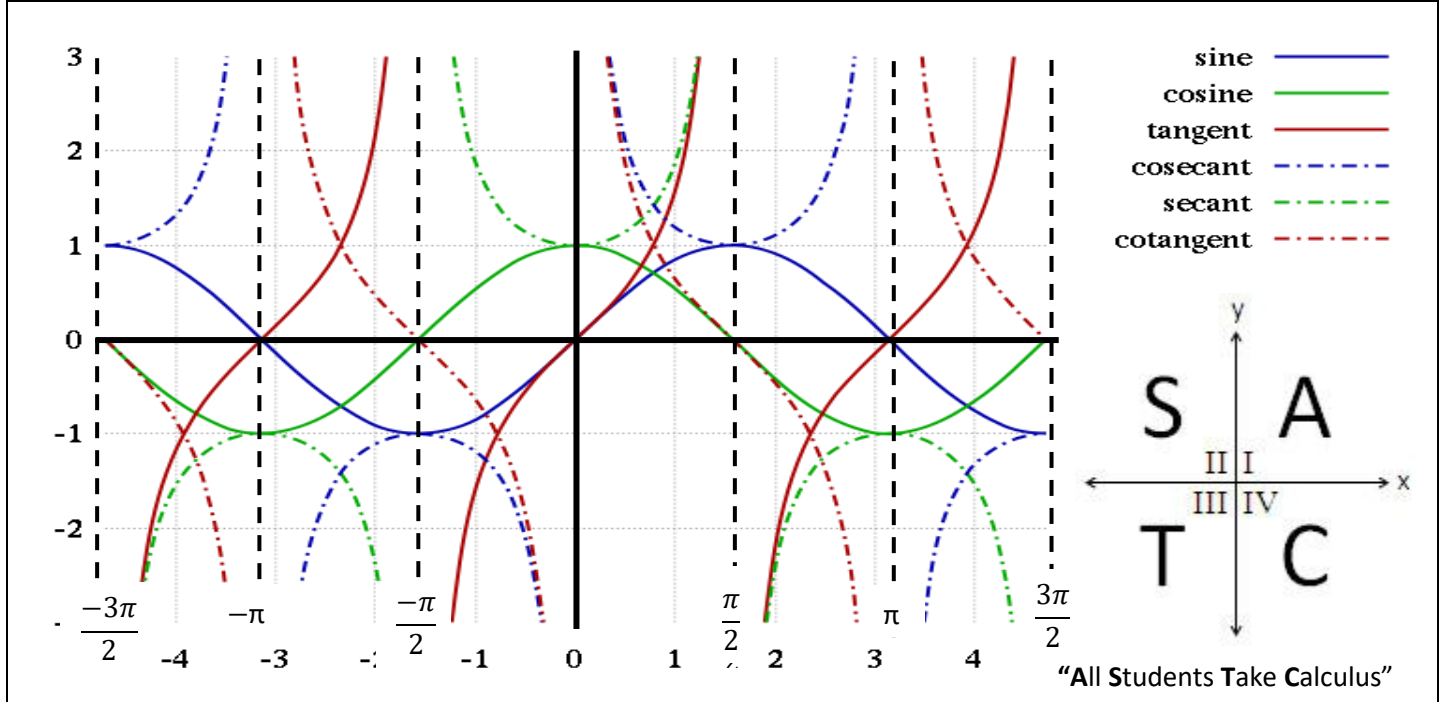


# Harold's Trigonometry Cheat Sheet

29 April 2025

Unit Circle	Trig Chart																																				
	<p>(Quadrant I only)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #f4a460;"> <th>Degrees</th> <th>0°</th> <th>30°</th> <th>45°</th> <th>60°</th> <th>90°</th> </tr> </thead> <tbody> <tr> <td>Radians</td> <td>0</td> <td><math>\pi/6</math></td> <td><math>\pi/4</math></td> <td><math>\pi/3</math></td> <td><math>\pi/2</math></td> </tr> <tr> <td>Sin (θ) →</td> <td>0</td> <td><math>\frac{1}{2}</math></td> <td><math>\frac{\sqrt{2}}{2}</math></td> <td><math>\frac{\sqrt{3}}{2}</math></td> <td>1</td> </tr> <tr> <td>Cos (θ) ←</td> <td>1</td> <td><math>\frac{\sqrt{3}}{2}</math></td> <td><math>\frac{\sqrt{2}}{2}</math></td> <td><math>\frac{1}{2}</math></td> <td>0</td> </tr> <tr> <td>Sin (θ) Pattern</td> <td><math>\frac{\sqrt{0}}{2}</math></td> <td><math>\frac{\sqrt{1}}{2}</math></td> <td><math>\frac{\sqrt{2}}{2}</math></td> <td><math>\frac{\sqrt{3}}{2}</math></td> <td><math>\frac{\sqrt{4}}{2}</math></td> </tr> <tr> <td>Tan (θ) Pattern</td> <td>0</td> <td><math>\frac{(\sqrt{3})^1}{3}</math></td> <td><math>\frac{(\sqrt{3})^2}{3}</math></td> <td><math>\frac{(\sqrt{3})^3}{3}</math></td> <td>Und</td> </tr> </tbody> </table>	Degrees	0°	30°	45°	60°	90°	Radians	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$	Sin (θ) →	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	Cos (θ) ←	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	Sin (θ) Pattern	$\frac{\sqrt{0}}{2}$	$\frac{\sqrt{1}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{4}}{2}$	Tan (θ) Pattern	0	$\frac{(\sqrt{3})^1}{3}$	$\frac{(\sqrt{3})^2}{3}$	$\frac{(\sqrt{3})^3}{3}$	Und
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## Graphical Representation Of The Six Trig Functions

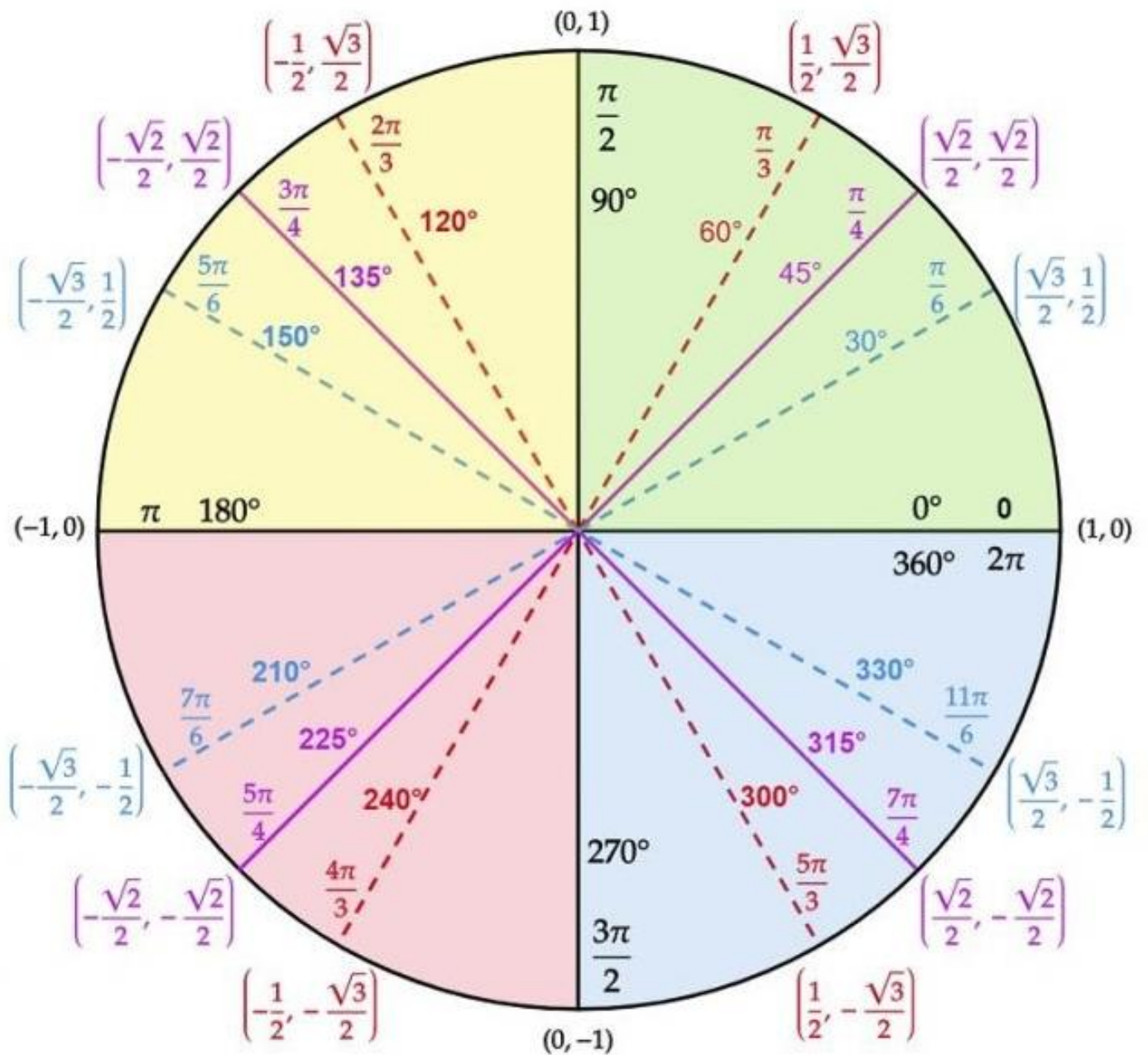


The Six Trig “Levers”	y = a sin (b (x - h)) + k	Graphing Tips	Notes
1) Move up/down ⇕	k (Vertical translation)	$k = \frac{(\max + \min)}{2}$	If k = f(x) then x-axis is replaced by f(x)-axis
2) Move left/right ↔	h (Phase shift)	‘+’ shifts right	$\sin(x) = \cos(x - \pi/2)$
3) Stretch up/down ⇕	a (Amplitude)	$a = \frac{(\max - \min)}{2}$	a is NOT peak-to-peak on the y-axis
4) Stretch left/right ↔	b (Frequency • 2π)	$T = \frac{2\pi}{ b } = \frac{1}{f}$	T = peak-to-peak on the θ-axis $T = \frac{\pi}{ b }$ for tan (bx) and cot (bx)
5) Flip about y-axis ↻	b → -b	f(x) → f(-x)	Even Function: $\cos(x) = \cos(-x)$
6) Flip about x-axis ↻	a → -a	f(x) → -f(x)	Odd Function: $\sin(x) = -\sin(-x)$

## Unit Circle

$$(x, y) = (\cos \theta, \sin \theta)$$

$$\pi \text{ rad} = 180^\circ$$



**Source:** Unit Circle Quick Lesson - Matter of Math  
<https://matterofmath.com/trigonometry/unit-circle/>