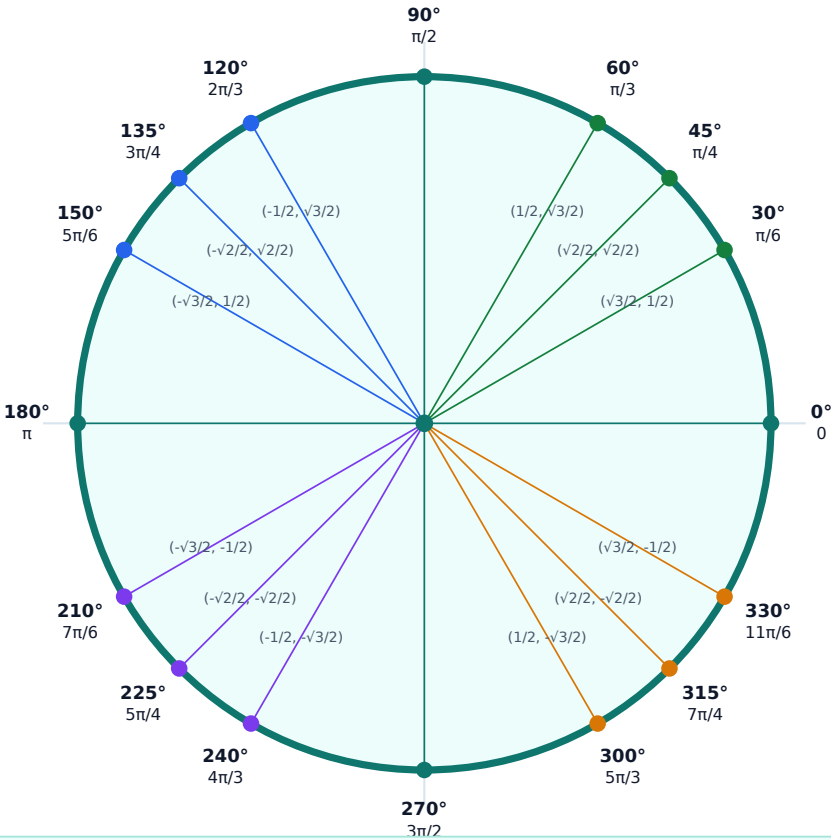


The Unit Circle

$(x, y) = (\cos \theta, \sin \theta) \cdot \tan \theta = y/x$

ANGLES, RADIANs, AND EXACT COORDINATES

Read every point as $(\cos \theta, \sin \theta)$.



FIRST-QUADRANT PATTERN

sin: $\sqrt{0/2}, \sqrt{1/2}, \sqrt{2/2}, \sqrt{3/2}, \sqrt{4/2}$

cos: reverse the list

Angles: $0^\circ, 30^\circ, 45^\circ, 60^\circ, 90^\circ$

Exact Trigonometric Values

Undefined when $\cos \theta = 0$

Degrees	Radians	$\cos \theta$	$\sin \theta$	$\tan \theta$
0°	0	1	0	0
30°	$\pi/6$	$\sqrt{3}/2$	$1/2$	$\sqrt{3}/3$
45°	$\pi/4$	$\sqrt{2}/2$	$\sqrt{2}/2$	1
60°	$\pi/3$	$1/2$	$\sqrt{3}/2$	$\sqrt{3}$
90°	$\pi/2$	0	1	undef.
120°	$2\pi/3$	$-1/2$	$\sqrt{3}/2$	$-\sqrt{3}$
135°	$3\pi/4$	$-\sqrt{2}/2$	$\sqrt{2}/2$	-1
150°	$5\pi/6$	$-\sqrt{3}/2$	$1/2$	$-\sqrt{3}/3$
180°	π	-1	0	0
210°	$7\pi/6$	$-\sqrt{3}/2$	$-1/2$	$\sqrt{3}/3$
225°	$5\pi/4$	$-\sqrt{2}/2$	$-\sqrt{2}/2$	1
240°	$4\pi/3$	$-1/2$	$-\sqrt{3}/2$	$\sqrt{3}$
270°	$3\pi/2$	0	-1	undef.
300°	$5\pi/3$	$1/2$	$-\sqrt{3}/2$	$-\sqrt{3}$
315°	$7\pi/4$	$\sqrt{2}/2$	$-\sqrt{2}/2$	-1
330°	$11\pi/6$	$\sqrt{3}/2$	$-1/2$	$-\sqrt{3}/3$

QUADRANT SIGN CHECK

- I** All positive **II** Sine positive **III** Tangent positive **IV** Cosine positive