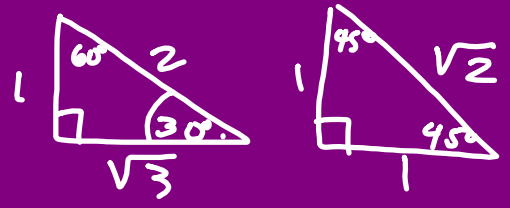
May 5, 2023

Special Angles - Degrees



Sin 30° = 1/2

Sin 60° = √3/2

Cos 30° = √3/2

Cos 60° = 1/2

Sin 45° = 1/√2 · √2/√2

Cos 45 = √2/2

Deg	Sin	Cos	tan
0°	$\frac{\sqrt{0}}{2}=0$	1	$\frac{0}{1}=0$
30°	$\frac{\sqrt{1}}{2}=\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}=\frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}}=1$
60°	$\frac{\sqrt{3}}{2}$	1/2	$\frac{\sqrt{3}}{1}=\sqrt{3}$
90°	$\frac{\sqrt{4}}{2}=1$	0	$\frac{1}{0}=$ undef

Deg	csc / sin	sec / cos	cot / tan
0°	$\frac{\sqrt{0}}{2}=0$	1	$\frac{0}{1}=0$
30°	$\frac{\sqrt{1}}{2}=\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}=\frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}}=1$
60°	$\frac{\sqrt{3}}{2}$	$1/2$	$\frac{\sqrt{3}}{1}=\sqrt{3}$
90°	$\frac{\sqrt{4}}{2}=1$	0	$\frac{1}{0}=$ undef

$\sin 30^\circ = \frac{1}{2}$

$\csc 30^\circ = 2$

$\sec 45^\circ = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2}$

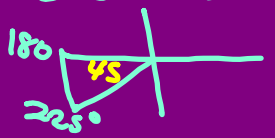
Reciprocal

$\sqrt{2} \leftrightarrow \frac{\sqrt{2}}{2}$

$\sqrt{3} \leftrightarrow \frac{\sqrt{3}}{3}$

$\cos 120^\circ = \boxed{-\frac{1}{2}}$

$\csc 225^\circ = \frac{2}{\sqrt{2}} = \sqrt{2}$



$\tan(-210^\circ) = -\frac{\sqrt{3}}{3}$

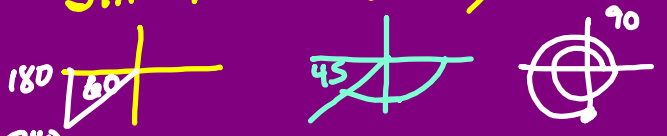
$\sin 270^\circ = -1$

$\cot 180^\circ = \frac{1}{0} = \text{undef.}$

$\frac{0}{1}$

Deg	sin	cos	tan
0°	$\frac{\sqrt{0}}{2}=0$	1	$\frac{0}{1}=0$
30°	$\frac{\sqrt{1}}{2}=\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}=\frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}}=1$
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{1}=\sqrt{3}$
90°	$\frac{\sqrt{4}}{2}=1$	0	$\frac{1}{0}=$ undef

$\sin^2 240^\circ - \cot(-135^\circ)\csc 630^\circ$

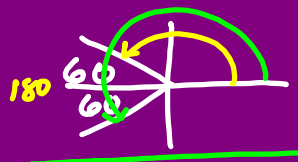


$\left(-\frac{\sqrt{3}}{2}\right)^2 - (+1)(-1)$

$\frac{3}{4} + +1 = \frac{7}{4}$

Find all angles $0° \le \theta < 360°$

$\cos\theta = -\frac{1}{2}$



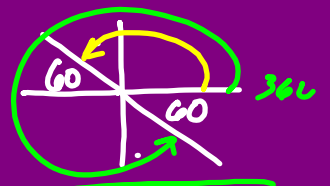
$120°, 240°$

1) Find quadrants. (use + or − + All Star Trig Class)
2) Find reference angle.
3) Name angles.

$\cot\theta = -\frac{\sqrt{3}}{3}$

$\tan\theta = \frac{3}{-\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$= \sqrt{3}$

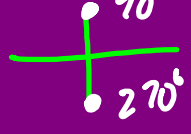


$120°, 300°$

Deg	sin	cos	tan
0°	$\frac{\sqrt{0}}{2} = 0$	1	$\frac{0}{1} = 0$
30°	$\frac{\sqrt{1}}{2} = \frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}} = 1$
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{1} = \sqrt{3}$
90°	$\frac{\sqrt{4}}{2} = 1$	0	$\frac{1}{0} =$ undef

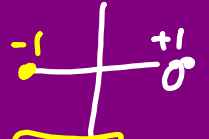
$\sec\theta =$ undef

$\cos\theta = 0$



$90°, 270°$

$\cos\theta = -1$



$180°$