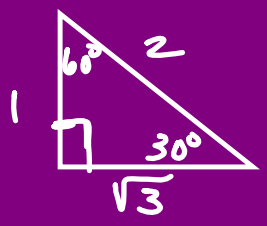
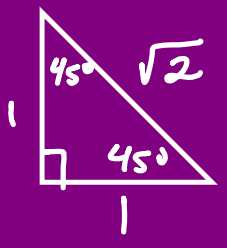
May 6, 2024

Special Angles - Degrees





$\sin\theta = \frac{y}{r}$

$\cos\theta = \frac{x}{r}$

$\tan\theta = \frac{y}{x}$

$1, 2, \sqrt{3}$
$1, 2, 1.7$

$\sin 30° = \frac{1}{2}$

$\cos 30° = \frac{\sqrt{3}}{2}$

$\sin 60° = \frac{\sqrt{3}}{2}$

$\cos 60° = \frac{1}{2}$

$\sin 45° = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\cos 45° = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

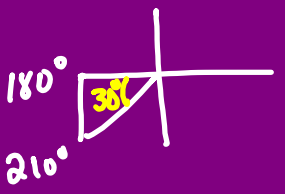
Deg	sin	cos	tan
0°	$\frac{\sqrt{0}}{2} = 0$	1	$\frac{0}{1} = 0$
30°	$\frac{\sqrt{1}}{2} = \frac{1}{2}$	$\sqrt{3}/2$	$\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}} = 1$
60°	$\frac{\sqrt{3}}{2}$	$1/2$	$\frac{\sqrt{3}}{1} = \sqrt{3}$
90°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

$\sec 60° = \frac{2}{1} = 2$

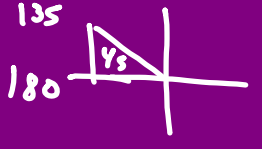
Deg	sin	cos	tan
0°	$\frac{\sqrt{0}}{2}=0$	1	$\frac{0}{1}=0$
30°	$\frac{\sqrt{1}}{2}=\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}=\frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}}=1$
60°	$\frac{\sqrt{3}}{2}$	$1/2$	$\frac{\sqrt{3}}{1}=\sqrt{3}$
90°	$\frac{\sqrt{4}}{2}=1$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

sec

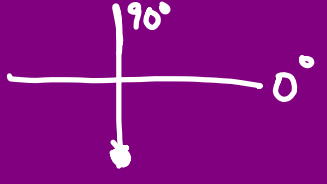
$\sin 210^\circ = -\frac{1}{2}$



$\cos 135^\circ = -\frac{\sqrt{2}}{2}$



$\sin 270^\circ = -1$



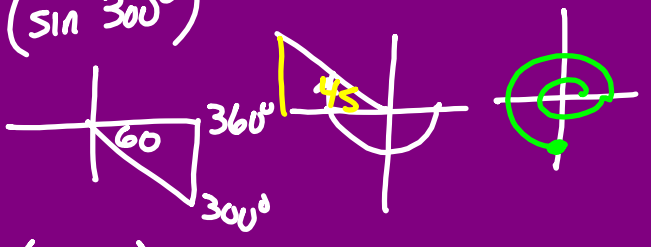
$\sec 135^\circ = -\frac{2\cdot\sqrt{2}}{\sqrt{2}\cdot\sqrt{2}} = -\frac{2\sqrt{2}}{2}$

$\sec 180^\circ = -1$

Deg	sin (csc)	cos	tan (cot)
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

$\sin^2 300^\circ - \cot(-225)\csc 630^\circ$

$(\sin 300^\circ)^2$



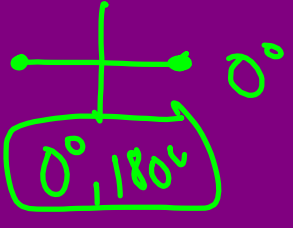
$\left(-\frac{\sqrt{3}}{2}\right)^2 - (+1)(+1)$

$= \frac{3}{4} - 1$

$= -\frac{1}{4}$

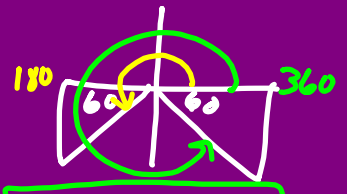
Deg	csc sin	sec cos	cot tan
0°	$\frac{\sqrt{0}}{2}=0$	1	$\frac{0}{1}=0$
30°	$\frac{\sqrt{1}}{2}=\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}=\frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}}=1$
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{1}=\sqrt{3}$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

csc θ is undef.
Sin θ = 0



Find angle θ. $0^\circ \le \theta < 360^\circ$

$\sin\theta = -\frac{\sqrt{3}}{2}$



1) Find quadrants
2) Find reference angle
3) Name angles

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

$\tan\theta = -\frac{1}{\sqrt{3}}$