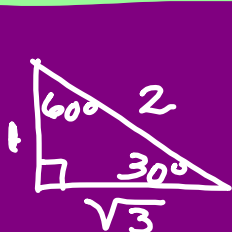
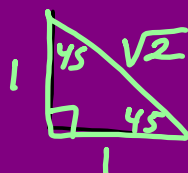


# SPECIAL ANGLES - DEGREES



1, 2,  $\sqrt{3}$



$$\begin{aligned} \sin \theta &= \frac{y}{r} \leftarrow \\ \cos \theta &= \frac{x}{r} \leftarrow \\ \tan \theta &= y/x \end{aligned}$$

$$\begin{aligned} \sin 45^\circ &= \frac{1 \cdot \sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} \\ &= \frac{\sqrt{2}}{2} \end{aligned}$$

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

Deg	csc Sin	sec Cos	cot tan
$0^\circ$	$\frac{\sqrt{0}}{2} = 0$	1	$\frac{0}{1} = 0$
$30^\circ$	$\frac{\sqrt{1}}{2} = \frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$
$45^\circ$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}} = 1$
$60^\circ$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{1} = \sqrt{3}$
$90^\circ$	$\frac{\sqrt{4}}{2} = 1$	0	$\frac{1}{0} = \text{Undef}$

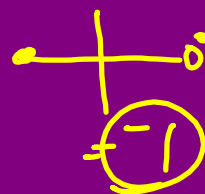
$\sin 60^\circ = \frac{\sqrt{3}}{2}$   
 $\tan 30^\circ = \frac{\sqrt{3}}{3}$

$\sec 60^\circ = 2$   
 $\csc 45^\circ = \frac{2}{\sqrt{2} \cdot \sqrt{2}} = \frac{2\sqrt{2}}{2}$

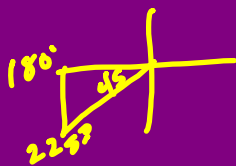
$\sin 120^\circ = \frac{+\sqrt{3}}{2}$



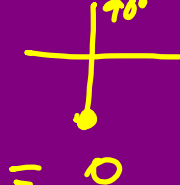
$\cos 180^\circ$



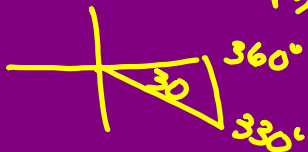
$\cos 225^\circ = \frac{-\sqrt{2}}{2}$



$\cot 270^\circ$



$\cot 330^\circ = \frac{3}{\sqrt{3}} = \sqrt{3}$



Deg	$\csc$ Sin	$\sec$ Cos	$\cot$ Tan
$0^\circ$	$\frac{\sqrt{0}}{2} = 0$	1	$\frac{0}{1} = 0$
$30^\circ$	$\frac{\sqrt{2}}{2} = \frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$
$45^\circ$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{\sqrt{2}} = 1$
$60^\circ$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{1} = \sqrt{3}$
$90^\circ$	$\frac{\sqrt{4}}{2} = 1$	0	$\frac{1}{0} = \text{Undef}$

$(\sin 240^\circ)^2$

$$\sin^2 240^\circ - \cot(-225^\circ) \csc 63^\circ$$



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

$$= \frac{3}{4} - 1 = \left(-\frac{1}{4}\right)$$

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

Find angles.



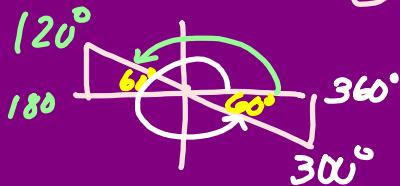
$$240^\circ, 300^\circ$$

$$0^\circ \leq \theta < 360^\circ$$

- 1) Find quadrants
- 2) Find reference  $\angle$ .
- 3) Name angles.

$$\tan \theta = \sqrt{3}$$

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



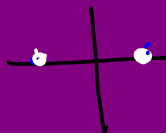
$$120^\circ, 300^\circ$$

Find angles.

$$0^\circ \leq \theta < 360^\circ$$

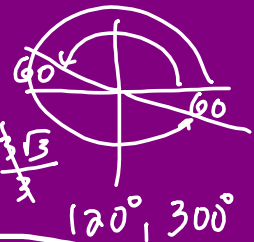
- 1) Find quadrants.  
Using ASTC
- 2) Find reference  $\angle$ .
- 3) Name angles.

$\frac{1}{0}$   $\cot \theta$  is undefined.  
 $\sin \theta = 0$   
 $0^\circ, 180^\circ$



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

$$\tan \theta = \frac{2}{\sqrt{3} \cdot \sqrt{3}} = \frac{2}{3}$$



$$120^\circ, 300^\circ$$

$$\sec \theta = -1$$

$$\cos \theta = 1$$

