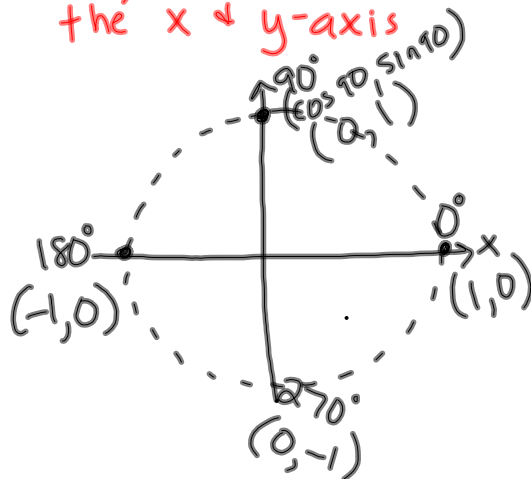
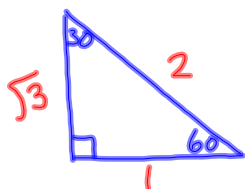


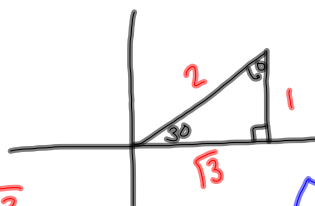
Cos, Sin & Tan of angles on the x & y-axis



30°-60°-90° Special Angles



example:



$$\begin{aligned} \cos 30^\circ &= \frac{\sqrt{3}}{2} \\ \sin 30^\circ &= \frac{1}{2} \\ \tan 30^\circ &= \frac{1}{\sqrt{3}} \end{aligned}$$

EXACT value
0.866 = $\frac{\sqrt{3}}{2}$

* Side Note

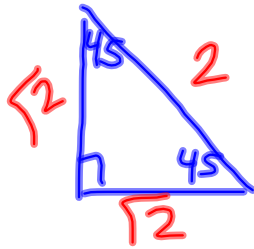
Radicals are not allowed in the denominator.

We have to rationalize the denominator.

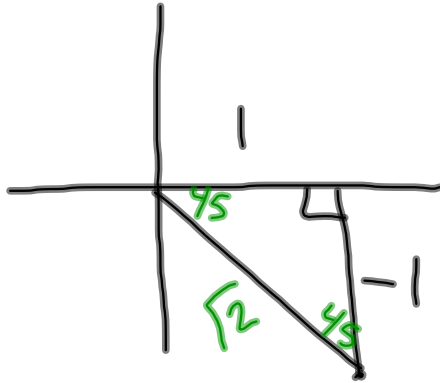
* multiply the radical by itself.

$$\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

45°-45°-90° Special triangle



3d)
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$$\begin{aligned} a^2 + b^2 &= c^2 \\ (1)^2 + (-1)^2 &= c^2 \\ 2 &= c^2 \\ \sqrt{2} &= c \end{aligned}$$

$$\sin \theta = \frac{-1}{\sqrt{2}} \text{ or } \frac{-\sqrt{2}}{2}$$

$$\cos \theta = \frac{1}{\sqrt{2}} \text{ or } \frac{\sqrt{2}}{2}$$

$$\tan \theta = -1$$

$$* \frac{\sqrt{2}}{2} \approx 0.707$$

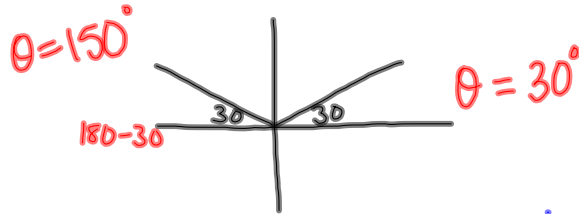
Some Examples:

Solve for θ :

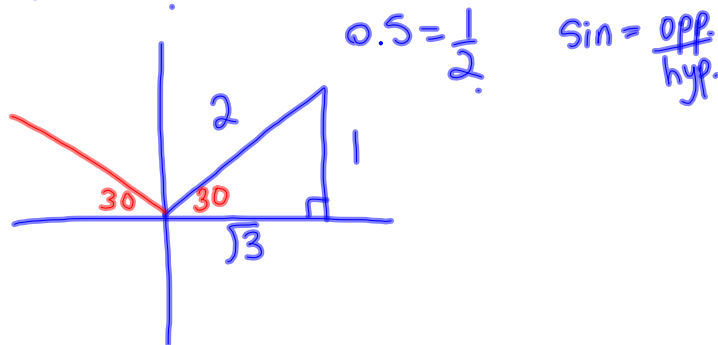
a) $\sin \theta = 0.5 \quad 0^\circ \leq \theta < 360^\circ$

From 1201, $\sin^{-1}(0.5) \Rightarrow 30^\circ$

Sin is positive in Q1 + Q2 reference angle

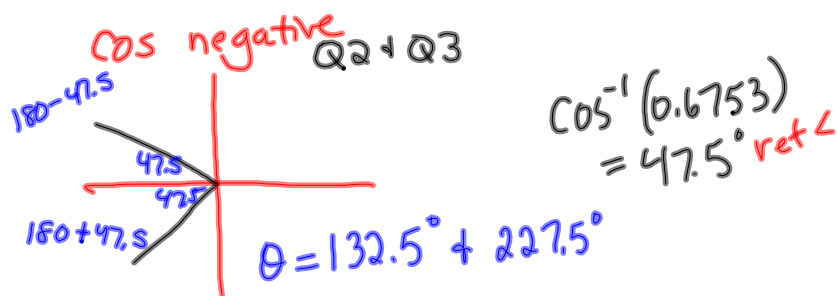


Without calculator, use special Δ



ex. 2 $\cos \theta = -0.6753$

* Not a special ratio $0 \leq \theta < 360^\circ$



One to try:

3. $\sin \theta = -\frac{\sqrt{2}}{2} \quad 225^\circ + 315^\circ$

4. $\tan \theta = 1 \quad 45^\circ + 225^\circ$