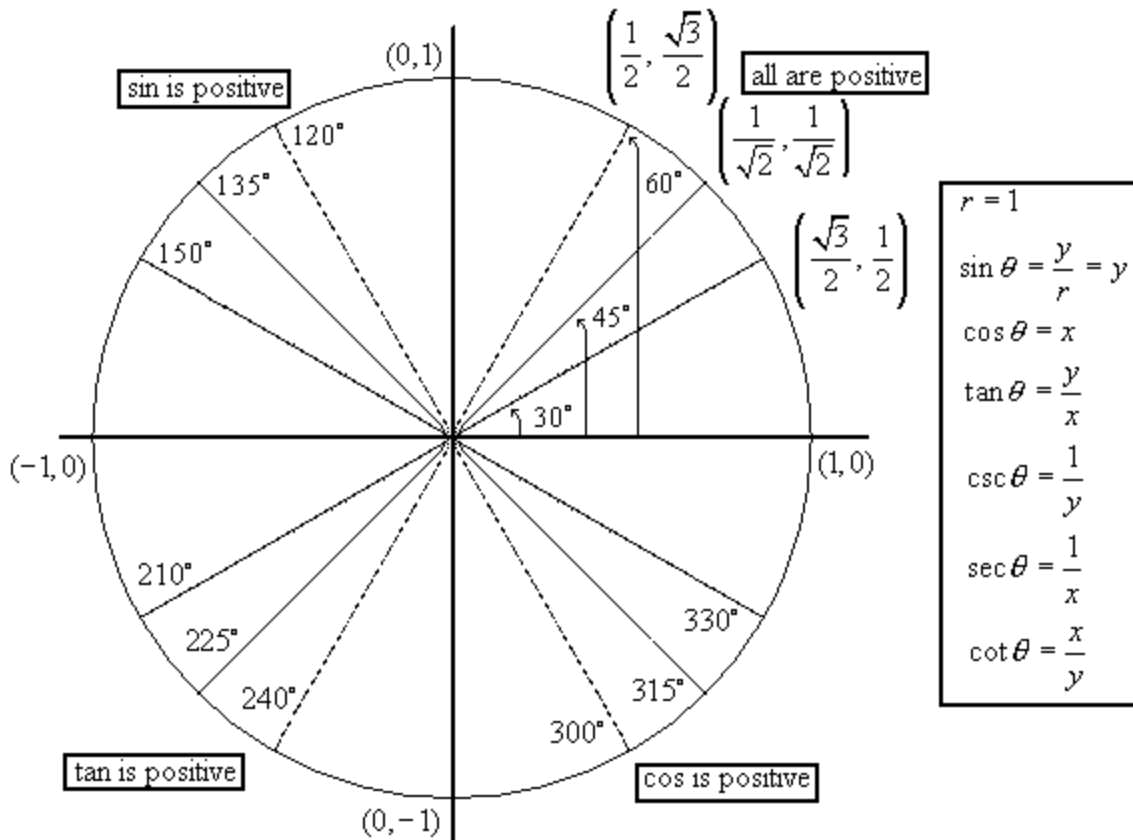


Trig Ratios for 30° , 45° , 60° (and More): A (Fabulous) Picture!!



Example 1) In the above fabulous picture, look at the triangle formed by drawing a perpendicular from the 60° point to the x axis. Name the second, third, and fourth quadrant angles (between 90° and 360°) that give congruent triangles by drawing perpendiculars to the x axis.

Solution second quadrant: 120° ; third quadrant: 240° ; fourth quadrant: 300°

Example 2) Find, using the above fabulous picture, (a) $\sin(300^\circ)$ (b) $\tan(180^\circ)$.

Solution (a) 300° is a fourth quadrant angle, so the sine is negative.

The corresponding first quadrant point is $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$. Therefore, $\sin(300^\circ) = -\frac{\sqrt{3}}{2}$.

(b) Using the point $(-1, 0)$, $\tan(180^\circ) = \frac{y}{x} = \frac{0}{-1} = 0$.

Two for you.

Find: 1) $\cos(135^\circ)$ 2) $\cot(-180^\circ)$

Answers 1) $-\frac{1}{\sqrt{2}}$ 2) undefined