

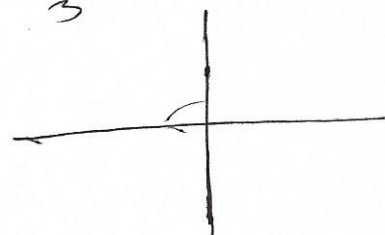
Write each trig using t on θ .

$$\begin{aligned} \sin(t) &= \sin\theta = y & \csc t &= 1/y & \tan(t) &= \frac{y}{x} \\ \cos(t) &= \cos\theta = x & \sec &= 1/x & \cot t &= \frac{x}{y} \end{aligned}$$

Find the 6 trig function value of t where
 $P(-1/2, \sqrt{3}/2)$

$$\sin t = \sqrt{3}/2 \quad \csc t = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

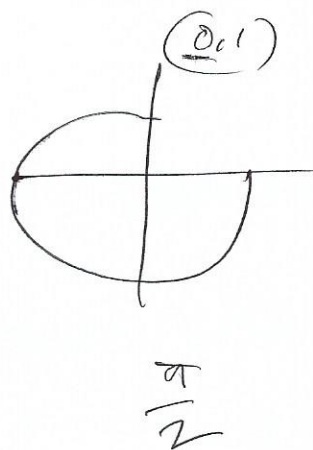
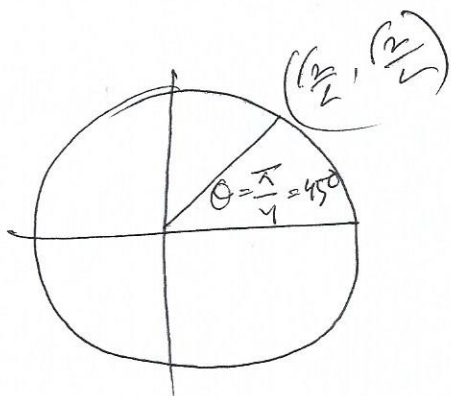
$$\cos t = -1/2 \quad \sec t = -2$$



Finding the exact function values for trig functions requires finding $P(x, y)$, point on terminal side of angle after rotation.

θ (radians)	θ (degree)	$\sin\theta$	$\cos\theta$	$\tan\theta$	$\csc\theta$	$\sec\theta$	$\cot\theta$
0	0	0	1	0	undefined	1	undefined
$\pi/2$	90°	1	0	undefined	1	und	0
π	180°	0	-1	0	und	-1	und
$3\pi/2$	270°	-1	0	undef	-1	und	0

$$\cos(-270^\circ) = \cos 90^\circ = 0$$



$$y = x$$

$$x^2 + y^2 = 1$$

$$x^2 + x^2 = 1$$

$$2x^2 = 1$$

$$x^2 = 1/2$$

$$x = \pm \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\sin \pi/4 = \frac{\sqrt{2}}{2}$$

$$\csc \pi/4 = \frac{2}{\sqrt{2}} = \sqrt{2} \quad \tan \pi/4 = 1$$

$$\cos \pi/4 = \frac{\sqrt{2}}{2}$$

$$\sec \pi/4 = \frac{2}{\sqrt{2}} = \sqrt{2} \quad \cot \pi/4 = 1$$