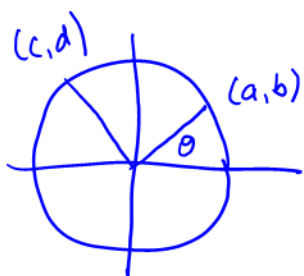


For each angle shown, determine the quadrant (I, II, III, or IV) and the requested trig function values. For the quadrant, if the angle is a multiple of  $\frac{\pi}{2}$ , then enter  $+x$ ,  $-x$ ,  $+y$ , or  $-y$ , for angles on the positive x-axis, negative x-axis, positive y-axis, or negative y-axis.

Angle $\theta$ (radians)	Quadrant	$\sin \theta$	$\cos \theta$
$\frac{\pi}{3}$	I	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$
$\frac{2\pi}{3}$	II	$\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$
$\frac{5\pi}{6}$	II	$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$
$\frac{11\pi}{6}$	IV	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$
$\frac{3\pi}{4}$	II	$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$
$\pi$	$-x$	0	-1
$\frac{7\pi}{4}$	IV	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$
$\frac{11\pi}{3}$	IV	$-\frac{\sqrt{3}}{2}$	$\frac{1}{2}$
0	$+x$	0	1
$\frac{3\pi}{2}$	$-y$	-1	0
$\frac{31\pi}{6}$	III	$-\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$
$\frac{11\pi}{4}$	IV	$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$

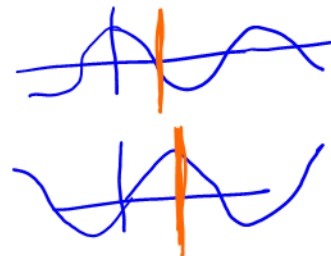
If a point with coordinates  $(a, b)$  is on the unit circle at rotation  $\theta$ , then the point on the unit circle at rotation  $\theta + \frac{\pi}{2}$  has what coordinates?



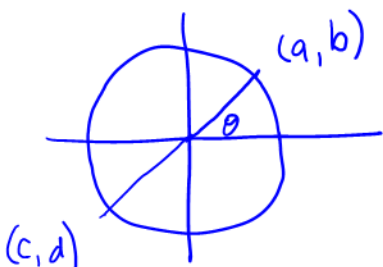
$$c = \cos(\theta + \frac{\pi}{2}) = -\sin \theta = -b$$

$$d = \sin(\theta + \frac{\pi}{2}) = \cos \theta = a$$

$$\boxed{(-b, a)}$$



If a point with coordinates  $(a, b)$  is on the unit circle at rotation  $\theta$ , then the point on the unit circle at rotation  $\theta - \pi$  has what coordinates?



$$c = -a$$

$$d = -b$$

$$\boxed{(-a, -b)}$$