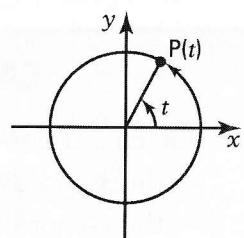


7. Indicate in which quadrant each of the following trigonometric points is located.

a) $P(120^\circ)$ II b) $P(300^\circ)$ IV c) $P(400^\circ)$ I d) $P(-120^\circ)$ III
 e) $P\left(\frac{5\pi}{6}\right)$ II f) $P\left(\frac{4\pi}{3}\right)$ III g) $P\left(\frac{11\pi}{6}\right)$ IV h) $P\left(-\frac{3\pi}{4}\right)$ III

8. If $P(t)$ is a trigonometric point located in the 1st quadrant, deduce the quadrant that each of the following trigonometric points will be located in.

a) $P(t + \pi)$ III b) $P\left(t + \frac{\pi}{2}\right)$ II c) $P\left(t + \frac{3\pi}{2}\right)$ IV
 d) $P(-t)$ IV e) $P(\pi - t)$ II f) $P\left(t - \frac{\pi}{2}\right)$ IV
 g) $P(t + 2\pi)$ I h) $P(t - 2\pi)$ I i) $P(t + 6\pi)$ I

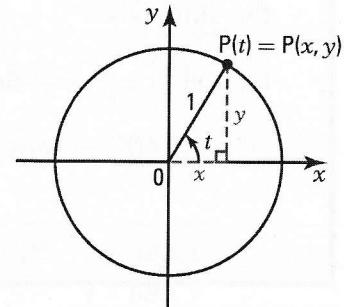


ACTIVITY 4 Cartesian coordinates of a trigonometric point

- a) Consider a trigonometric point $P(t)$ located in the 1st quadrant; $\left(0 \leq t \leq \frac{\pi}{2}\right)$.

Which trigonometric ratio enables you to calculate

1. the x -coordinate of the point $P(t)$? $x = \cos t$
2. the y -coordinate of the point $P(t)$? $y = \sin t$

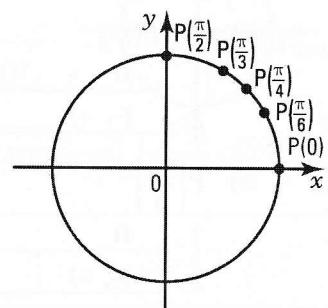


- b) Determine, without using a calculator, the coordinates of the trigonometric points

1. $P(0) = (\cos 0, \sin 0) = (1, 0)$
2. $P\left(\frac{\pi}{2}\right) = \left(\cos \frac{\pi}{2}, \sin \frac{\pi}{2}\right) = (0, 1)$

- c) The points $P\left(\frac{\pi}{6}\right)$, $P\left(\frac{\pi}{4}\right)$ and $P\left(\frac{\pi}{3}\right)$ are trigonometric points in the 1st quadrant called **remarkable trigonometric points**. Determine the exact coordinates of these points without using a calculator.

1. $P\left(\frac{\pi}{6}\right) = \left(\cos \frac{\pi}{6}, \sin \frac{\pi}{6}\right) = \left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
2. $P\left(\frac{\pi}{4}\right) = \left(\cos \frac{\pi}{4}, \sin \frac{\pi}{4}\right) = \left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$
3. $P\left(\frac{\pi}{3}\right) = \left(\cos \frac{\pi}{3}, \sin \frac{\pi}{3}\right) = \left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$



- d) The points $P(1 \text{ rad})$ and $P(40^\circ)$ are trigonometric points located in the 1st quadrant. Using a calculator, determine the coordinates of these points to the nearest hundredth. Use the appropriate mode, rad or deg, which applies.

1. $P(1) = (\cos 1, \sin 1) = (0.54, 0.84)$
2. $P(40^\circ) = (\cos 40, \sin 40) = (0.77, 0.64)$

