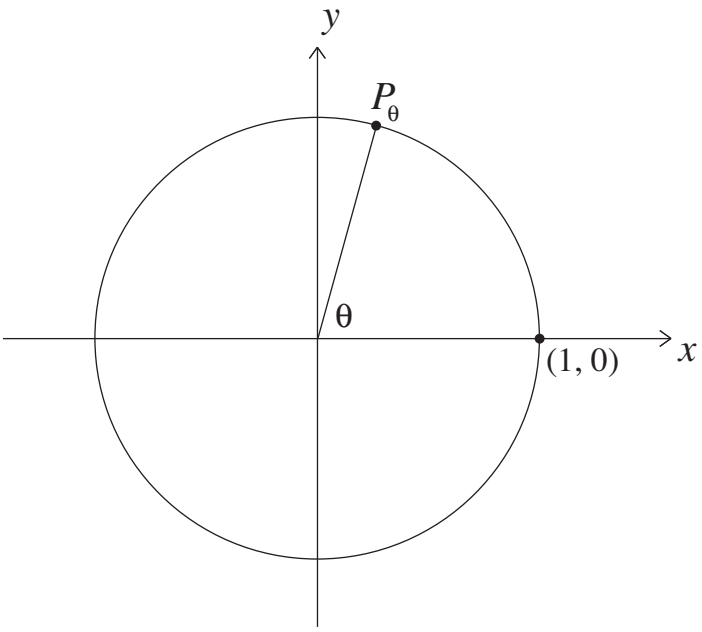
Quiz **Name**

1. The diagram below shows a coordinate system, the unit circle, and a positive angle θ. *After adding relevant aspects to this diagram*, find and illustrate two relationships that exist between the quantities $\sin\theta, \cos\theta, \sin(\theta + \frac{\pi}{2})$, and $\cos(\theta + \frac{\pi}{2})$.



2. Let θ be an angle with $0 < \theta < \frac{\pi}{2}$. Consider an xy-coordinate system and the unit circle and explain why the formulas $\sin(\pi - \theta) = \sin\,\theta$ and $\cos(\pi - \theta) = -\cos\,\theta$ hold.

3. Consider the angle $\theta = 64$ in radian measure. Use the fact that $\frac{64}{2\pi} \approx 10.186$ and hence that that $64 \approx 10(2\pi) + 0.75\frac{\pi}{2}$ to carefully place the point $P_\theta$in its approximate position on the unit circle. Use your placement to estimate $\sin 64$ and $\cos 64$. Then check these estimates with a calculator.