Exercise 1 *Find the unit vector* $\hat{\mathbf{u}}$ *in the second quadrant of* $\mathbb{R}^2$ *that makes an angle of* $2\pi/3$ *radians with the* x*-axis.*

$$\hat{\mathbf{u}} = \left\langle \boxed{\cos\left(\frac{2\pi}{3}\right)}, \boxed{\sin\left(\frac{2\pi}{3}\right)} \right\rangle$$

Hint: *Draw a picture and use trigonometry!*
