

**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.

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

**Hint:** Draw a picture and use trigonometry!

