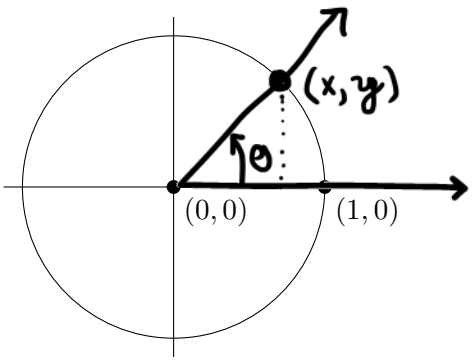
Trigonometry and The Unit Circle

$\sin(\theta)$ $\cos(\theta)$



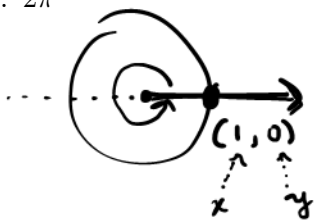
Define

$\sin(\theta) = y$-coord

$\cos(\theta) = x$-coord

E.g. Compute the sine and cosine of

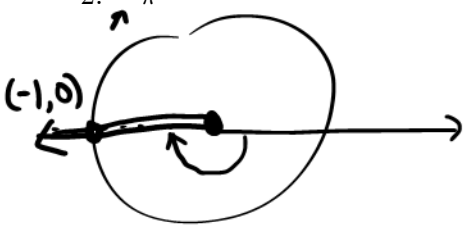
1. 2π



$\sin(2\pi) = 0$

$\cos(2\pi) = 1$

2. $-\pi$

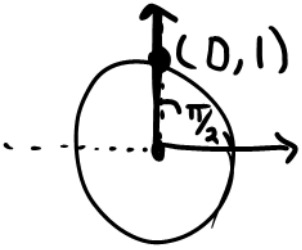


$\sin(-\pi) = 0$

$\cos(-\pi) = -1$

$\frac{1}{2} \cdot \pi$

3. $\frac{\pi}{2}$

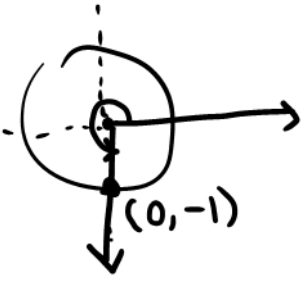


$\sin(\pi/2) = 1$

$\cos(\pi/2) = 0$

$3 \cdot \frac{\pi}{2}$

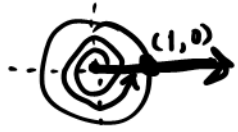
4. $\frac{3\pi}{2}$



$\sin(3\pi/2) = -1$

$\cos(3\pi/2) = 0$

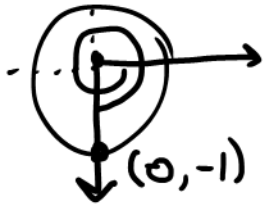
5. $\frac{8\pi}{2} = 8 \cdot \frac{\pi}{2} = 4 \cdot \pi$



$\sin\left(\frac{8\pi}{2}\right) = 0$

$\cos\left(\frac{8\pi}{2}\right) = 1$

6. $\frac{-5\pi}{2} = -5 \cdot \frac{\pi}{2}$



$\sin\left(\frac{-5\pi}{2}\right) = -1$

$\cos\left(\frac{-5\pi}{2}\right) = 0$