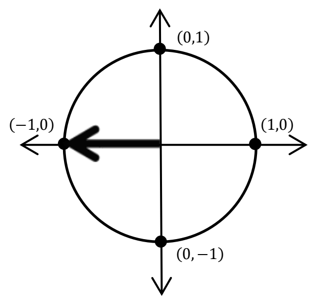
The Weekly Rigor

No. 259 "A mathematician is a machine for turning coffee into theorems." June 8, 2019

16 Problems Concerning the Unit Circle (Part 1 of 2)

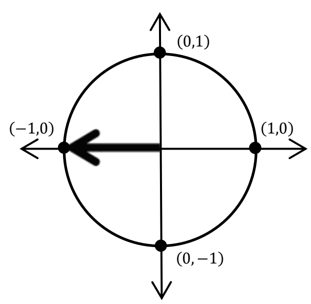
(Part 2)

3. $\cos(\pi)$



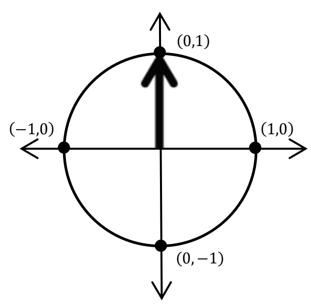
For any angle θ in standard position and its corresponding point (x, y) on the unit circle, $(\cos(\theta), \sin(\theta)) = (x, y)$. Hence, for $\theta = \pi$, $\cos(\pi) = -1$.

4. $\sin(\pi)$



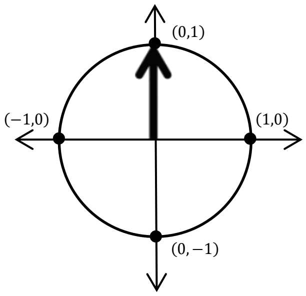
For any angle θ in standard position and its corresponding point (x, y) on the unit circle, $(\cos(\theta), \sin(\theta)) = (x, y)$. Hence, for $\theta = \pi$, $\sin(\pi) = 0$.

5. $\cos\left(\frac{\pi}{2}\right)$



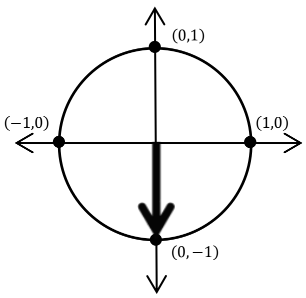
For any angle θ in standard position and its corresponding point (x, y) on the unit circle, $(\cos(\theta), \sin(\theta)) = (x, y)$. Hence, for $\theta = \frac{\pi}{2}$, $\cos\left(\frac{\pi}{2}\right) = 0$.

6. $\sin\left(\frac{\pi}{2}\right)$



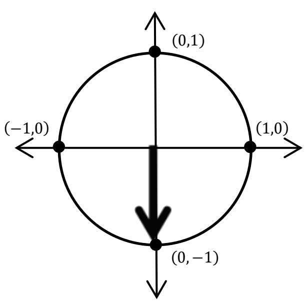
For any angle θ in standard position and its corresponding point (x, y) on the unit circle, $(\cos(\theta), \sin(\theta)) = (x, y)$. Hence, for $\theta = \frac{\pi}{2}$, $\sin\left(\frac{\pi}{2}\right) = 1$.

7. $\cos\left(\frac{3\pi}{2}\right)$



For any angle θ in standard position and its corresponding point (x, y) on the unit circle, $(\cos(\theta), \sin(\theta)) = (x, y)$. Hence, for $\theta = \frac{3\pi}{2}$, $\cos\left(\frac{3\pi}{2}\right) = 0$.

8. $\sin\left(\frac{3\pi}{2}\right)$



For any angle θ in standard position and its corresponding point (x, y) on the unit circle, $(\cos(\theta), \sin(\theta)) = (x, y)$. Hence, for $\theta = \frac{3\pi}{2}$, $\sin\left(\frac{3\pi}{2}\right) = -1$.