

Evaluate $\sec\left(\frac{5\pi}{3}\right)$

09/08/21

Solution

$$\sec\left(\frac{5\pi}{3}\right) = \frac{1}{\cos\left(\frac{5\pi}{3}\right)}$$

$$\begin{aligned}\cos\left(\frac{5\pi}{3}\right) &= \cos\left(\frac{5\pi}{3} - \frac{6\pi}{3}\right) \\ &= \cos\left(-\frac{\pi}{3}\right) \\ &= \cos\left(\frac{\pi}{3}\right) = \frac{1}{2}\end{aligned}$$

Conclude

$$\sec\left(\frac{5\pi}{3}\right) = \frac{1}{\frac{1}{2}} = 2$$

$$\boxed{\sec\left(\frac{5\pi}{3}\right) = 2.}$$