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

Solution

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

$$\cos\left(\frac{5\pi}{3}\right) = \cos\left(\frac{5\pi}{3} - \frac{6\pi}{3}\right)$$

$$= \cos\left(-\pi/3\right)$$

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

Conclude

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

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