

Exercise 128

Evaluate the following functional values.

$$\cos\left(\frac{5\pi}{12}\right)$$

Solution

Use the half-angle formula for cosine.

$$\begin{aligned}\cos\left(\frac{5\pi}{12}\right) &= \sqrt{\frac{1 + \cos\left(\frac{5\pi}{6}\right)}{2}} \\ &= \sqrt{\frac{1 + \left(-\frac{\sqrt{3}}{2}\right)}{2}} \\ &= \frac{\sqrt{2 - \sqrt{3}}}{2}\end{aligned}$$