

Convert the angle to degrees:

$$\frac{7\pi}{4} = \frac{7\pi}{4} \cdot \frac{180^\circ}{\pi} = \frac{1260^\circ}{4} = 315^\circ$$

This is in the fourth quadrant and its reference angle is 45° . It intersects the unit circle at the point $\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$.

The value of cosine is the x-coordinate:

$$\cos\left(\frac{7\pi}{4}\right) = \frac{\sqrt{2}}{2}$$