Convert the angle to degrees:

$$\frac{5\pi}{4} = \frac{5\pi}{4} \cdot \frac{180^\circ}{\pi} = \frac{900^\circ}{4} = 225^\circ$$

This is in the third 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 sine is the *y*-coordinate:

$$\sin\left(\frac{5\pi}{4}\right) = -\frac{\sqrt{2}}{2}$$