

3. Evaluate each of the following without a calculator using a trigonometric identity when needed.

$$\sin\left(\frac{3\pi}{4}\right) \quad \sin\left(\frac{11\pi}{4}\right) \quad \sin\left(\frac{7\pi}{4}\right) \quad \sin\left(\frac{-5\pi}{4}\right)$$

$$\sin\left(\frac{13\pi}{4}\right) \quad \sin\left(\frac{17\pi}{4}\right) \quad \sin\left(\frac{21\pi}{4}\right) \quad \sin\left(\frac{41\pi}{4}\right)$$

$$\sin\left(\frac{13\pi}{4}\right) \quad \sin\left(\frac{25\pi}{6}\right) \quad \sin\left(\frac{17\pi}{4}\right) \quad \sin\left(\frac{-\pi}{4}\right)$$

$$\sin\left(-\frac{13\pi}{4}\right) \quad \sin\left(\frac{16\pi}{3}\right) \quad \sin\left(-\frac{22\pi}{3}\right) \quad \sin\left(\frac{43\pi}{6}\right)$$

Stretch

$$1. \quad \sin\left(\frac{3\pi}{4}\right) + \cos\left(\frac{17\pi}{4}\right) =$$

$$\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

$$2. \quad \cos\left(\frac{10\pi}{3}\right) + \cos\left(\frac{17\pi}{3}\right) =$$

$$-\frac{1}{2} + \frac{1}{2} = 0$$

$$3. \quad \sin\left(\frac{31\pi}{6}\right) + \cos\left(-\frac{\pi}{3}\right) =$$

$$-\frac{1}{2} + \frac{1}{2} = 0$$

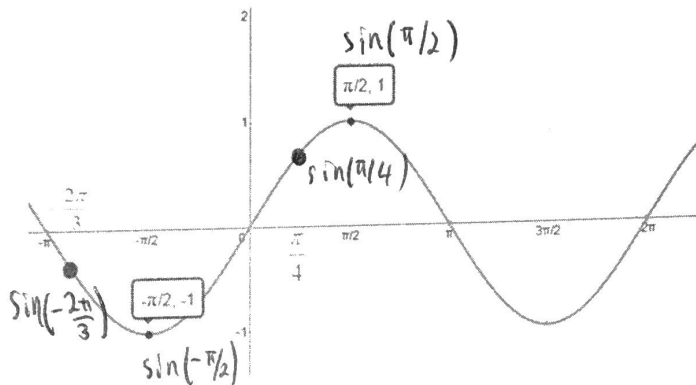
$$4. \quad \sin\left(\frac{11\pi}{6}\right) + \cos\left(-\frac{\pi}{3}\right) + \tan\left(\frac{\pi}{4}\right) =$$

$$-\frac{1}{2} + \frac{1}{2} + 1 = 1$$

Problem Set

5. Without using a calculator, rewrite each of the following in order from least to greatest. Use the graph to explain your reasoning.

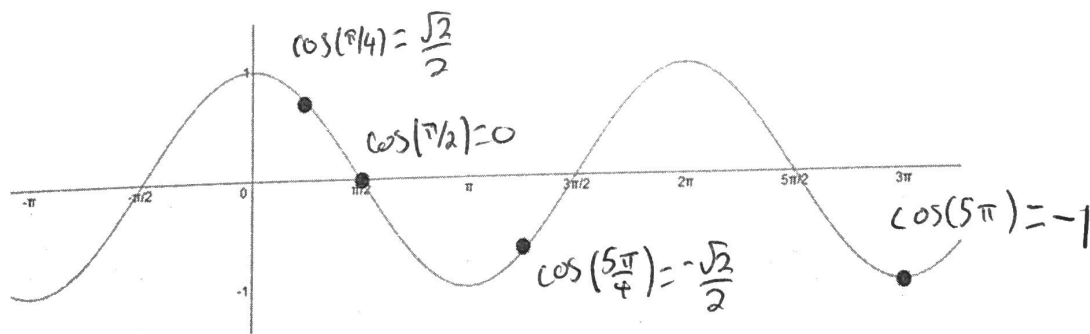
$\sin\left(\frac{\pi}{4}\right)$ $\sin\left(-\frac{2\pi}{3}\right)$ $\sin\left(\frac{\pi}{4}\right)$ $\sin\left(-\frac{\pi}{2}\right)$
 $-\frac{\sqrt{3}}{2}$ $\frac{\sqrt{2}}{2}$ -1
 $\frac{\sqrt{2}}{2}$



$\sin\left(-\frac{\pi}{2}\right) < \sin\left(-\frac{2\pi}{3}\right) < \sin\left(\frac{\pi}{4}\right)$

6. Without using a calculator, rewrite each of the following in order from least to greatest. Use the graph to explain your reasoning.

$\cos\left(\frac{\pi}{2}\right)$ $\cos\left(\frac{5\pi}{4}\right)$ $\cos\left(\frac{\pi}{4}\right)$ $\cos(5\pi)$ $\cos(5\pi) < \cos\left(\frac{5\pi}{4}\right) < \cos\left(\frac{\pi}{2}\right) < \cos\left(\frac{\pi}{4}\right)$



7. Evaluate each of the following without a calculator using a trigonometric identity when needed.

$\cos\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}$ $\cos\left(-\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}$ $\cos\left(\frac{7\pi}{6}\right) = -\frac{\sqrt{3}}{2}$ $\cos\left(\frac{13\pi}{6}\right) = \frac{\sqrt{3}}{2}$

8. Evaluate each of the following without a calculator using a trigonometric identity when needed.

$\sin\left(\frac{3\pi}{4}\right) = \frac{\sqrt{2}}{2}$ $\sin\left(\frac{11\pi}{4}\right) = \frac{\sqrt{2}}{2}$ $\sin\left(\frac{7\pi}{4}\right) = -\frac{\sqrt{2}}{2}$ $\sin\left(\frac{-5\pi}{4}\right) = -\sin\left(\frac{5\pi}{4}\right)$
 $-\sin\left(\frac{5\pi}{4}\right) = \frac{\sqrt{2}}{2}$