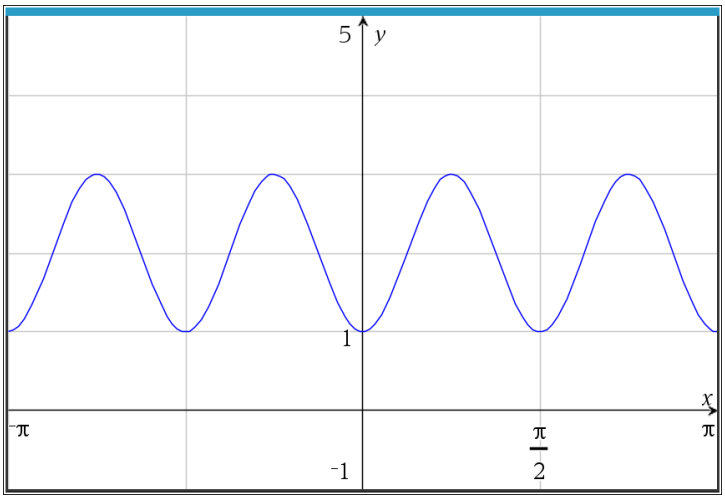
Practice Problem 1



A portion of the graph of a sinusoidal function g in the xy plane is given for $-\pi \leq x \leq \pi$. Which of the following could define $g(x)$?

(a) $1 + \sin(4x)$

(b) $1 - \cos(4x)$

(c) $2 + \sin(4x)$

(d) $2 - \cos(4x)$

Practice Problem 2

The function h is given by $h(x) = \cos x$. In the xy-plane, the graph of k is the image of h after a translation of $\frac{\pi}{3}$ to the right. Which of the following define $k(x)$?

(a) $\cos\left(x + \frac{\pi}{3}\right)$

(b) $\cos x + \frac{\pi}{3}$

(c) $\cos\left(x - \frac{\pi}{3}\right)$

(d) $\cos x - \frac{\pi}{3}$

Practice Problem 1 Solution:

(d) $2 - \cos(4x)$

From the given choices, the graph has been vertical translated up 2, there are 4 complete curves from $-\pi \leq x \leq \pi$, and on the $y - axis$, the graph is starting at a minimum which means it is a reflected cosine function over the $x - axis$.

Practice Problem 2 Solution:

(c) $\cos\left(x - \frac{\pi}{3}\right)$

Since this is a horizontal translation (to the right), the value must affect the x (input) only, and with it moving right, it must be of the form $x - \frac{\pi}{3}$.

***Note: This activity has been developed independently by Texas Instruments.* AP is a registered trademark of the College Board, which was not involved in the production of, and does not endorse, this product. Policies subject to change. Visit www.collegeboard.org.