Student: Cole Lamers **Date:** 07/10/19	**Instructor:** Kelly Galarneau **Course:** CA&T Internet (70263) Galarneau	**Assignment:** 5.4 Graphs of the Sine and Cosine Functions

1. Complete the following statement.

The range of the cosine function is _____.

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ✔ The range of the cosine function is $[-1,1]$.
  (Type your answer in interval notation.)
- ○ The range of the cosine function is all real numbers.

2. Determine if the statement is true or false.

The period of $y = 7\ \textbf{cos}\ 2x$ is π.

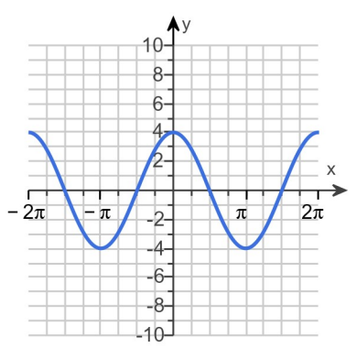
Choose the correct answer below.

- ○ False
- ✔ True

3. Sketch the graph of the given equation over the interval $[-2\pi, 2\pi]$.

$y = 4\ \textbf{cos}\ x$

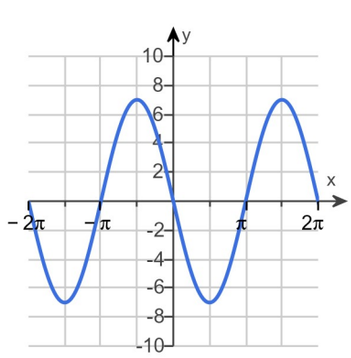
Use the graphing tool to graph the equation. Type pi to insert π as needed.



4. Sketch the graph of the given equation over the interval $[-2\pi, 2\pi]$.

$y = -7\ \textbf{sin}\ x$

Use the graphing tool to graph the equation. Type pi to insert π as needed.

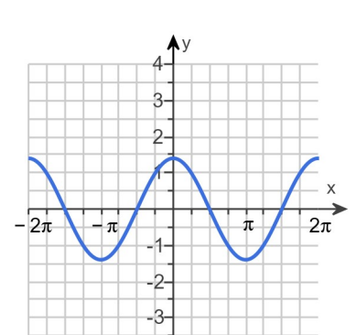


5. Sketch the graph of the given equation over the interval $[-2\pi, 2\pi]$.

$y = \frac{7}{5}\ \textbf{cos}\ x$

Use the graphing tool to graph the function.

(For any answer boxes shown with the grapher, type an exact answer. Type the word pi to insert the symbol π as needed.)

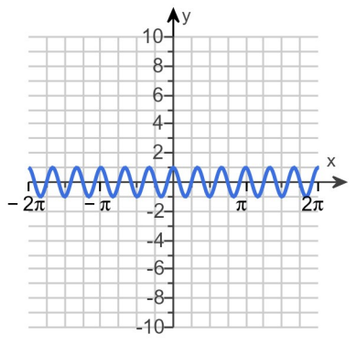


6.

Sketch the graph of the given equation over the interval $[-2\pi, 2\pi]$.

$y = \cos(6x)$

Use the graphing tool to graph the equation. Type pi to insert π as needed.

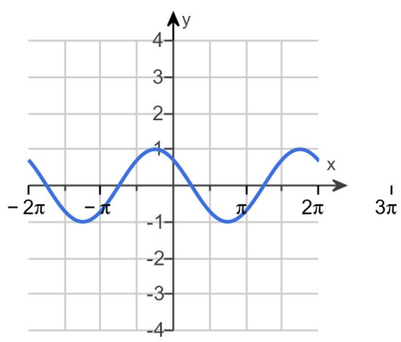


7.

Sketch the graph of the given equation over the interval $[-2\pi, 2\pi]$.

$y = \cos\left(x + \frac{\pi}{4}\right)$

Use the graphing tool to graph the equation. Type pi to insert π as needed.



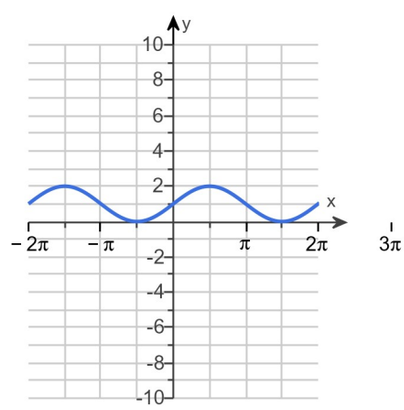
8.

Sketch the graph of the given equation over the interval $[-2\pi, 2\pi]$.

$y = \sin x + 1$

Use the graphing tool to graph the function.

(For any answer boxes shown with the grapher, type an exact answer. Type the word pi to insert the symbol π as needed.)



9. Write the following function in the form $y = a \cos b(x - c)$. Find the period and phase shift.

$y = -\frac{5}{4}\cos(10x - \pi)$

Write the given function in the form $y = a \cos b(x - c)$.

- **A.** $y = -\frac{25}{2}\cos\left(x - \frac{\pi}{10}\right)$
- **B.** $y = -\frac{5}{4}\cos 10\left(x - \frac{\pi}{10}\right)$
- **C.** $y = -\frac{5}{4}\cos 10(x - \pi)$
- **D.** $y = -\frac{25}{2}\cos(x - \pi)$

The period is $\frac{\pi}{5}$.

(Simplify your answer. Type an exact answer, using π as needed. Use integers or fractions for any numbers in the expression.)

The phase shift is $\frac{\pi}{10}$.

(Simplify your answer. Type an exact answer, using π as needed. Use integers or fractions for any numbers in the expression.)

10. Write the following function in the form y = a **sin** [b(x − c)]. Find the period and phase shift.

y = 5 **sin** (2πx + 6)

Write the given function in the form y = a **sin** [b(x − c)].

$y = 5 \sin\left[2\pi\left(x - \left(-\frac{3}{\pi}\right)\right)\right]$

The period is 1.
(Simplify your answer. Type an exact answer, using π as needed. Use integers or fractions for any numbers in the expression.)

The phase shift is $-\frac{3}{\pi}$.
(Simplify your answer. Type an exact answer, using π as needed. Use integers or fractions for any numbers in the expression.)

11. Watch the video and then solve the problem given below.

Click here to watch the video.[1]

Find the period and the phase shift of the function $y = 3 \sin\left(4x - \frac{\pi}{2}\right)$.

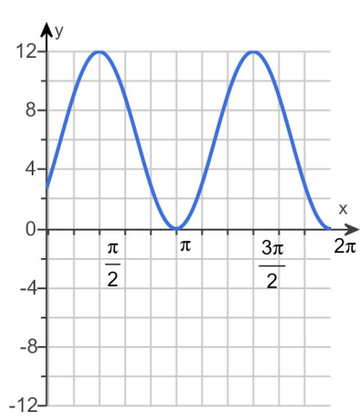
The period of the function is $\frac{\pi}{2}$ and the phase shift of the function is $\frac{\pi}{8}$.
(Simplify your answers. Type exact answers, using π as needed.)

1: http://mediaplayer.pearsoncmg.com/assets/jSGbqhhWX3PEy6VyJ5LpzH9QpcvmpBuu?clip=8

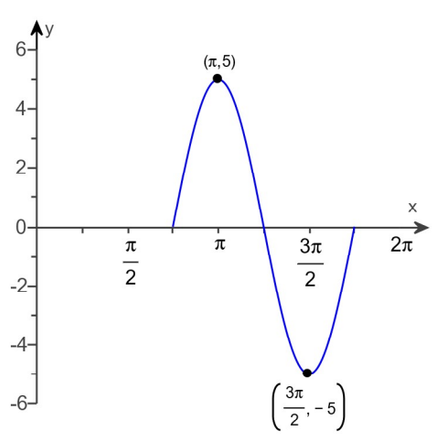
12. Graph the following equation over the interval [0, 2π].

y = 6 **cos** (− 2x + π) + 6

Use the graphing tool to graph the equation. Type pi to insert π as needed.



13. Find an equation of the graph shown on the right.

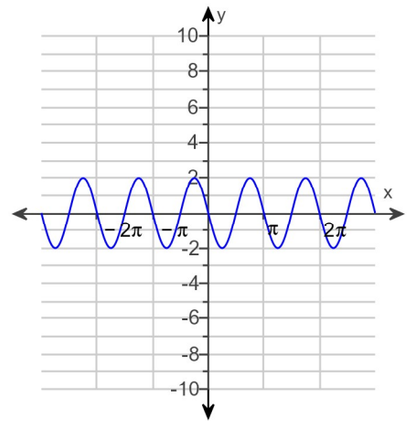


Choose the correct equation below.

- **A.** $y = 5 \sin\left(2x - \frac{3\pi}{4}\right)$
- **B.** $y = 10 \sin\left(2x - \frac{3\pi}{2}\right)$
- **C.** $y = 5 \sin\left(x - \frac{3\pi}{4}\right)$
- **D.** $y = 5 \sin\left(2x - \frac{3\pi}{2}\right)$ ✔

14.

Determine an equation $y = a \sin(b(x - c))$ for the graph shown to the right. Assume that a, b, and c are nonnegative.



Choose the correct equation below.

- **A.** $y = 2 \sin\left(2\left(x - \frac{\pi}{2}\right)\right)$
- **B.** $y = 2 \sin\left(2x - \frac{\pi}{2}\right)$
- **C.** $y = 4 \sin\left(2\left(x - \frac{\pi}{2}\right)\right)$
- **D.** $y = 2 \sin\left(x - \frac{\pi}{2}\right)$