



Apply transformations to trigonometric functions

- 1 What are the amplitude, period, phase shift, and vertical shift of this sinusoidal function?

$$f(x) = -\frac{8}{7}\sin(2x + \frac{3}{7}) + 3$$

A

$$\begin{aligned}\text{Amplitude} &= 2 \\ \text{Period} &= \frac{14\pi}{8} \\ \text{Phase Shift} &= \frac{3}{7} \text{ left} \\ \text{Vertical Shift} &= 3\end{aligned}$$

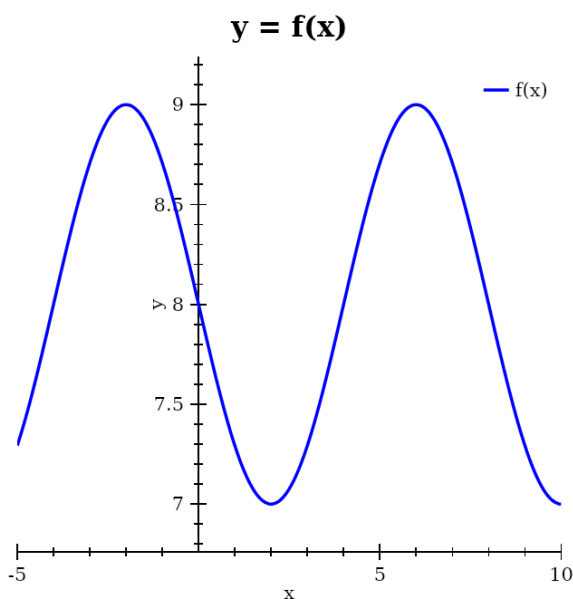
B

$$\begin{aligned}\text{Amplitude} &= \frac{8}{7} \\ \text{Period} &= \frac{2\pi}{2} \\ \text{Phase Shift} &= \frac{3}{7} \text{ left} \\ \text{Vertical Shift} &= 3\end{aligned}$$

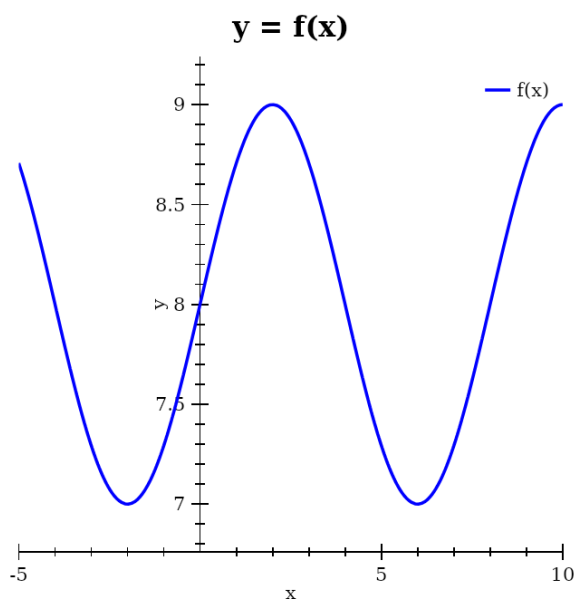
- 2 Which graph shows a sinusoidal function with this phase shift?

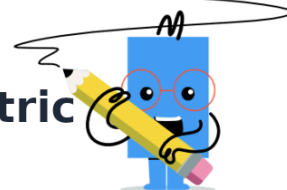
$$f(x) = \sin(\frac{1}{4}\pi x + 2\pi) + 8$$

A



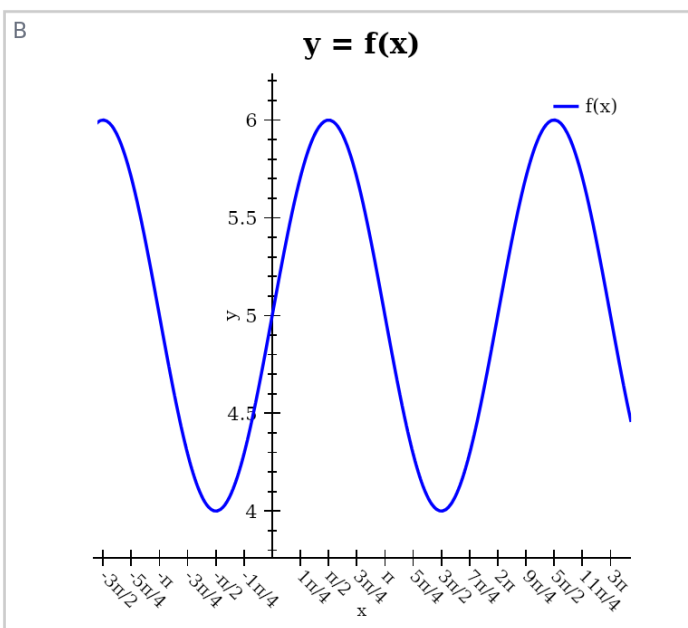
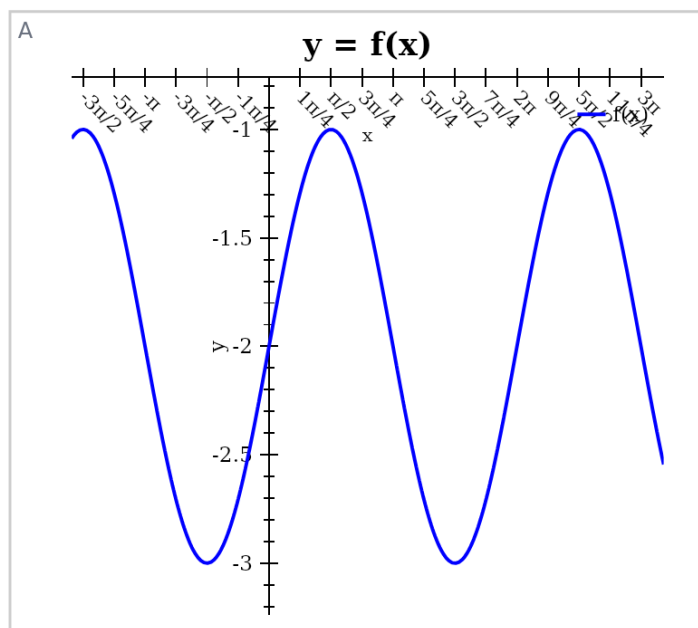
B



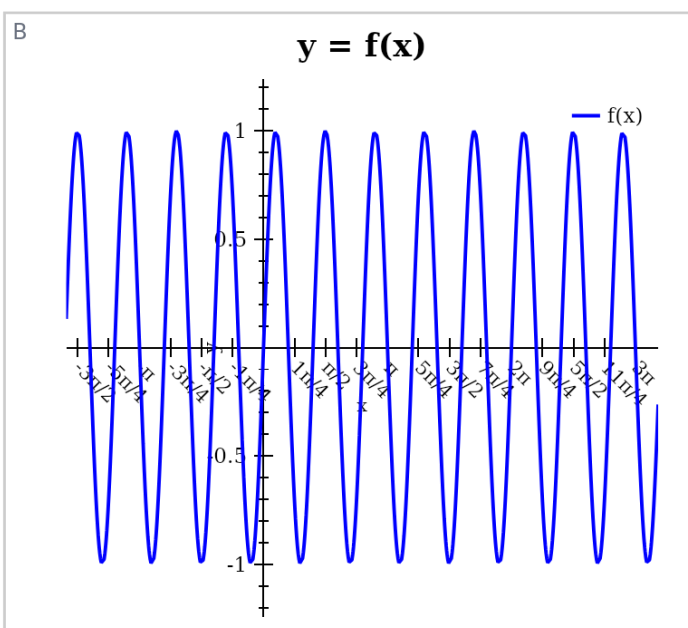
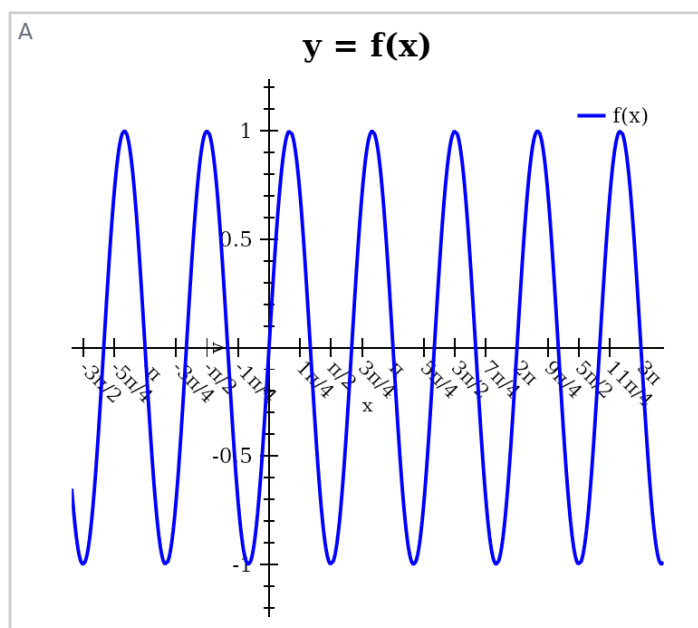


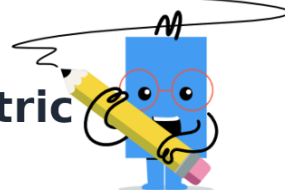
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- 3 Which graph shows a sinusoidal function with this vertical shift?
 $f(x) = \sin(x) + 5$



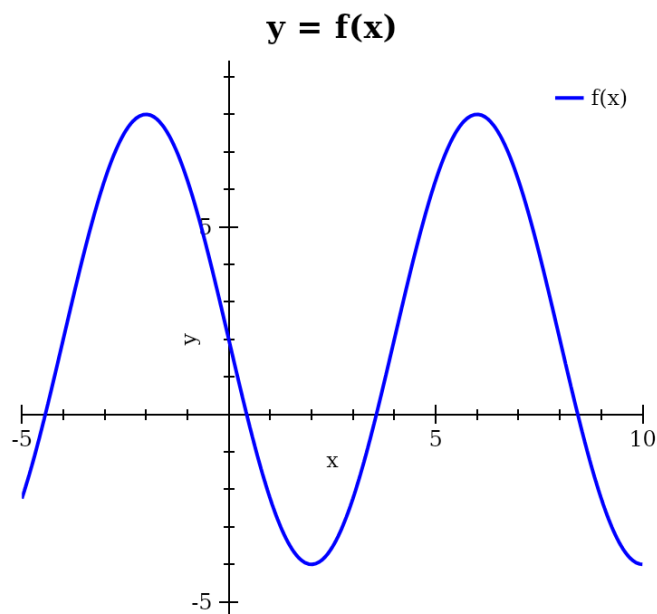
- 4 Which graph shows a sinusoidal function with this period?
 $f(x) = \sin(3x + 4\pi)$





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5 Which function would have a graph with this amplitude?



A

$$f(x) = 2 \sin\left(\frac{1}{4}\pi x\right) + 2$$

B

$$f(x) = -4 \sin\left(\frac{1}{4}\pi x\right) + 2$$

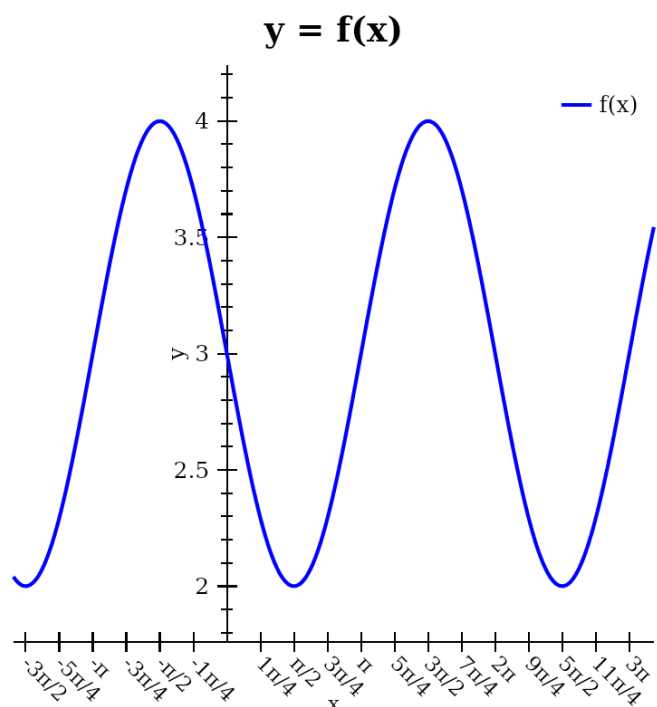
C

$$f(x) = 4 \sin\left(\frac{1}{4}\pi x\right) + 2$$

D

$$f(x) = -6 \sin\left(\frac{1}{4}\pi x\right) + 2$$

6 Which function would have a graph with this phase shift?



A

$$f(x) = \cos(x + 5\pi) + 3$$

B

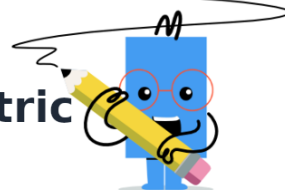
$$f(x) = \cos\left(x - \frac{1}{6}\pi\right) + 3$$

C

$$f(x) = \cos\left(x + \frac{4}{6}\pi\right) + 3$$

D

$$f(x) = \cos\left(x - \frac{4}{6}\pi\right) + 3$$



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- 7 Which sinusoidal function has these parameters?

$$\text{Amplitude} = 3$$

$$\text{Vertical Shift} = \frac{6}{11}$$

A $f(x) = 3 \cos(x) + \frac{6}{11}$

B $f(x) = 3 \cos\left(\frac{6}{11}x\right) + 1$

- 8 Which sinusoidal function has these parameters?

$$\text{Amplitude} = \frac{2}{7}$$

$$\text{Period} = \frac{10}{3}$$

$$\text{Phase Shift} = \frac{8}{3}\pi$$

$$\text{Vertical Shift} = \frac{4}{5}$$

A $f(x) = \frac{2}{7} \sin\left(\frac{3}{5}\pi x + \frac{8}{3}\right) + \frac{4}{5}$

B $f(x) = \frac{2}{7} \sin\left(\frac{3}{5}\pi x + \frac{4}{5}\right) + \frac{8}{3}$

- 9 Which graph shows the value of this function at $x = -2$?

$$f(x) = -8 \cos\left(\frac{1}{6}\pi x + 2\pi\right) + 4$$

