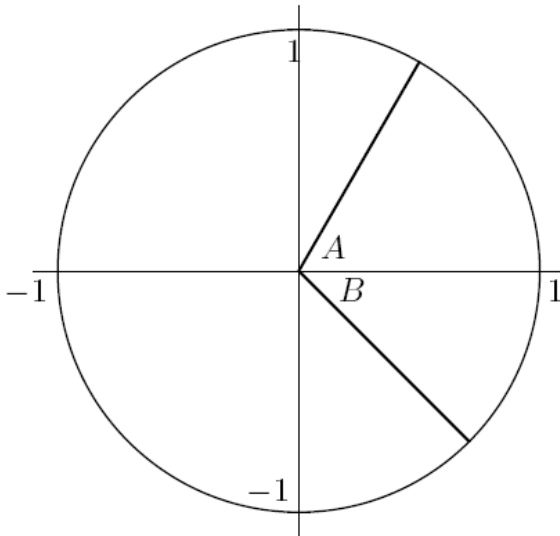


# Classroom Voting Questions: Precalculus

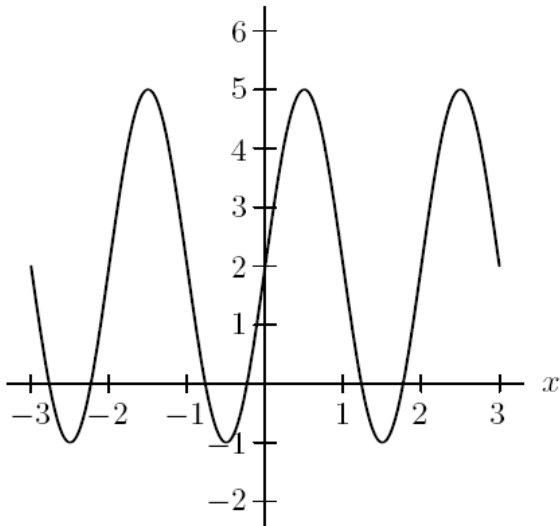
## Trigonometric Functions: Amplitudes, Periods, and Graphs

1. Which of the following is the approximate value for the sine and cosine of angles  $A$  and  $B$  in the figure below.



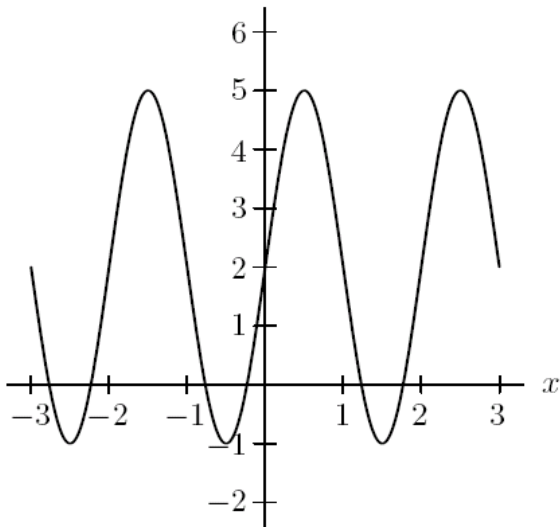
- (a)  $\sin A \approx 0.5$ ,  $\cos A \approx 0.85$ ,  $\sin B \approx -0.7$ ,  $\cos B \approx 0.7$   
(b)  $\sin A \approx 0.85$ ,  $\cos A \approx 0.5$ ,  $\sin B \approx -0.7$ ,  $\cos B \approx 0.7$   
(c)  $\sin A \approx 0.5$ ,  $\cos A \approx 0.85$ ,  $\sin B \approx 0.7$ ,  $\cos B \approx 0.7$   
(d)  $\sin A \approx 0.85$ ,  $\cos A \approx 0.5$ ,  $\sin B \approx 0.7$ ,  $\cos B \approx 0.7$

2. The amplitude and period of the function below are



- (a) Amplitude = 2, Period = 2
- (b) Amplitude = 2, Period = 3
- (c) Amplitude = 2, Period = 1/2
- (d) Amplitude = 3, Period = 2
- (e) Amplitude = 3, Period = 1/2

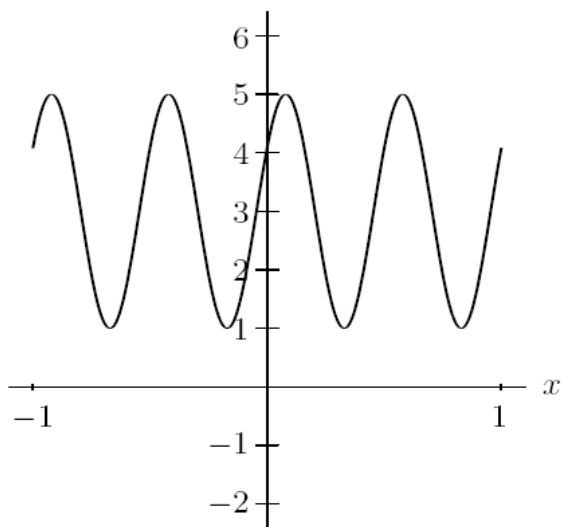
3. What is the equation of the function shown in the graph?



- (a)  $y = 3 \sin(2x) + 2$
- (b)  $y = 3 \cos(2x) + 2$
- (c)  $y = 3 \sin(\pi x) + 2$
- (d)  $y = 3 \cos(\pi x) + 2$
- (e)  $y = 3 \sin\left(\frac{1}{\pi}x\right) + 2$

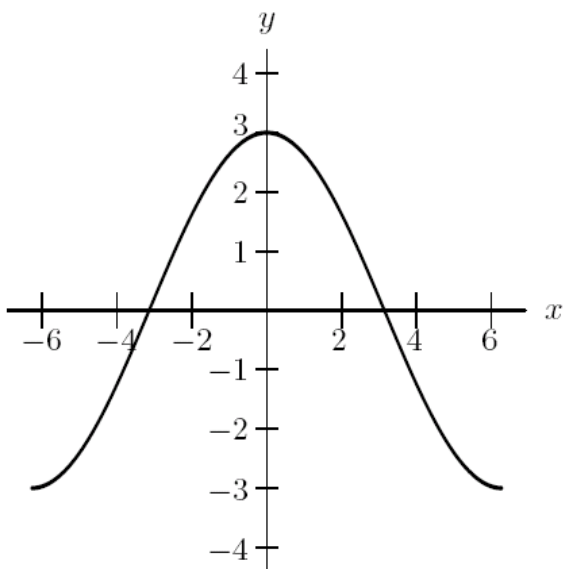
(f)  $y = 3 \cos\left(\frac{1}{\pi}x\right) + 2$

4. The amplitude and period of the function below are



- (a) Amplitude = 2, Period = 2
- (b) Amplitude = 2, Period = 3
- (c) Amplitude = 2, Period = 1/2
- (d) Amplitude = 3, Period = 2
- (e) Amplitude = 3, Period = 1/2

5. Which of the following could describe the graph below?

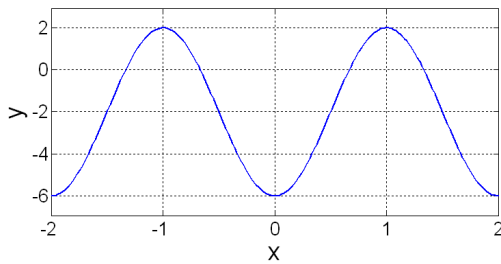


- (a)  $y = 3 \cos(2x)$
- (b)  $y = 3 \cos(x/2)$
- (c)  $y = 3 \sin(2x)$
- (d)  $y = 3 \sin(x/2)$

6. The function  $f(x) = 3 \sin(2x+4)$  is created when you take the function  $g(x) = 3 \sin(2x)$  and you...

- (a) shift it left by 4 units.
- (b) shift it right by 4 units.
- (c) shift it left by 2 units.
- (d) shift it right by 2 units.
- (e) shift it left by 8 units.

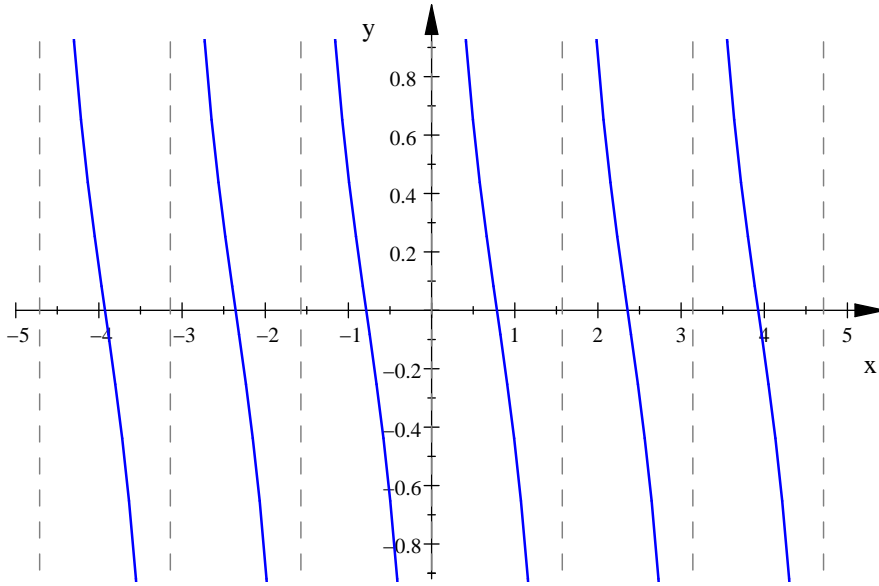
7. Which of the following could describe the graph below?



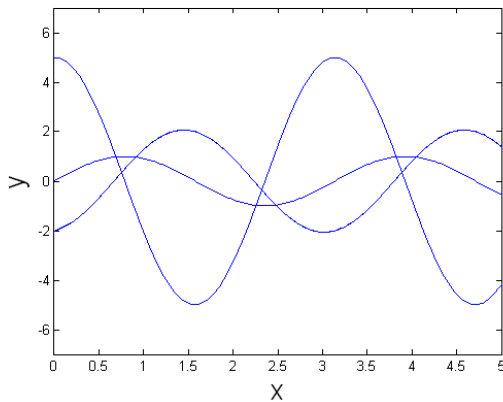
- (a)  $y = 4 \sin\left(\pi x - \frac{\pi}{2}\right) - 2$
- (b)  $y = -4 \sin\left(\pi x + \frac{\pi}{2}\right) - 2$
- (c)  $y = -4 \cos(\pi x) - 2$
- (d)  $y = 4 \cos(\pi(x + 1)) - 2$
- (e) All of the above
- (f) More than one, but not all of the above

8. What is an equation of the function whose graph is given below?

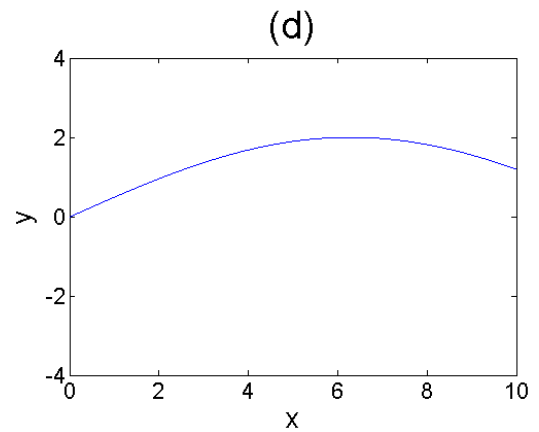
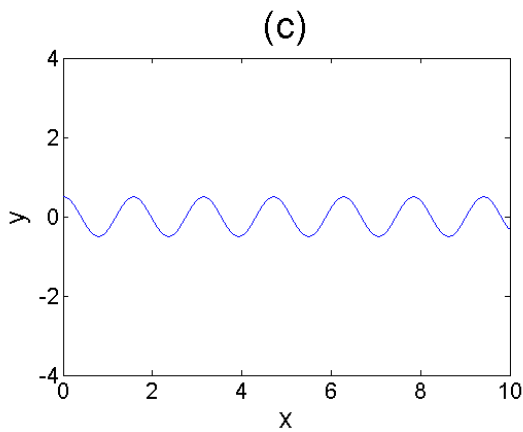
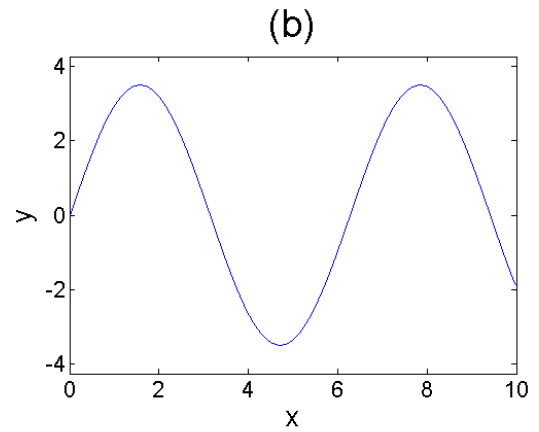
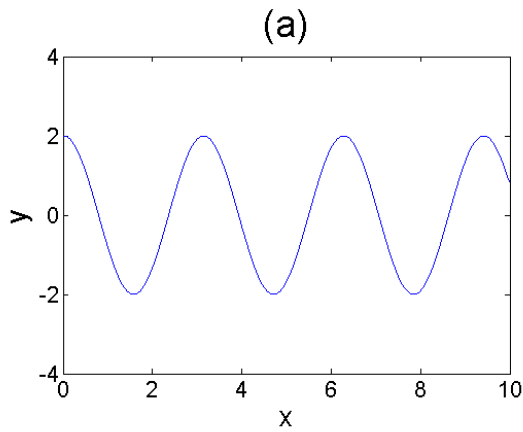
- (a)  $f(x) = \cot x$
- (b)  $f(x) = \cot 2x$
- (c)  $f(x) = \cot\left(x - \frac{\pi}{2}\right)$
- (d)  $f(x) = \cot\left(2x - \frac{\pi}{2}\right)$



9. Three different functions of the form  $y = A \sin(Bx + C)$  are plotted below. Could these all have the same value of  $B$ ?



- (a) Yes  
 (b) No  
 (c) Not enough information is given.
10. The functions plotted below are all of the form  $y = A \sin(Bx + C)$ . Which function has the largest value of  $B$ ?



11. What is the phase shift of  $f(x) = \frac{1}{5} \tan\left(2x + \frac{\pi}{2}\right)$ ?

- (a)  $2\pi$
- (b)  $\pi$
- (c)  $\frac{\pi}{2}$
- (d)  $\frac{\pi}{4}$
- (e)  $-2\pi$
- (f)  $-\pi$
- (g)  $-\frac{\pi}{2}$
- (h)  $-\frac{\pi}{4}$

12. What is the amplitude of  $f(x) = -3 \sin(2x)$ ?

- (a) 3
- (b) -3

- (c)  $\pi$
- (d)  $2\pi$

13. What is the amplitude of  $f(x) = -2 \sin x$ ?

- (a) 1
- (b) 2
- (c)  $-2$

14. What is the period of  $f(x) = -3 \sin(2x)$ ?

- (a) 3
- (b)  $-3$
- (c)  $\pi$
- (d)  $2\pi$

15. What is the period of  $f(x) = \frac{1}{5} \tan(2x)$ ?

- (a)  $\frac{1}{5}$
- (b)  $2\pi$
- (c)  $\pi$
- (d)  $\frac{\pi}{2}$
- (e)  $\frac{\pi}{4}$

16. Which of the basic trig functions below are odd functions?

- (a)  $f(x) = \sin(x)$ .
- (b)  $f(x) = \cos(x)$ .
- (c)  $f(x) = \tan(x)$ .
- (d) (a) and (b).
- (e) (a) and (c).
- (f) (b) and (c).
- (g) (a), (b), and (c).
- (h) None of the above.