

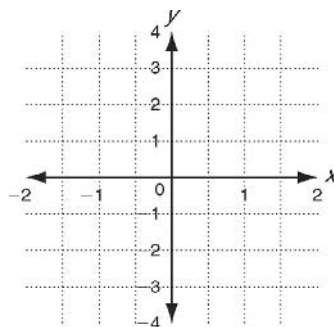
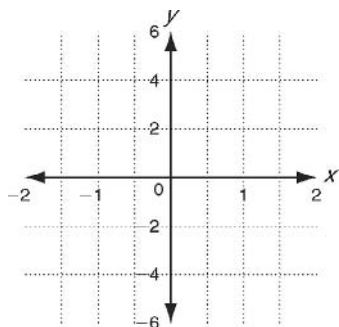
**LESSON**  
**11-1**

**Practice B**  
**Graphs of Sine and Cosine**

Using  $f(x) = \sin x$  or  $g(x) = \cos x$  as a guide, graph each function. Identify the amplitude and period.

1.  $b(x) = -5\sin \pi x$

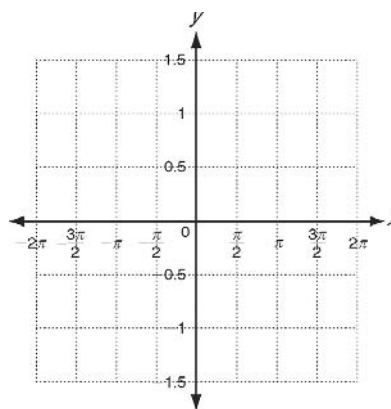
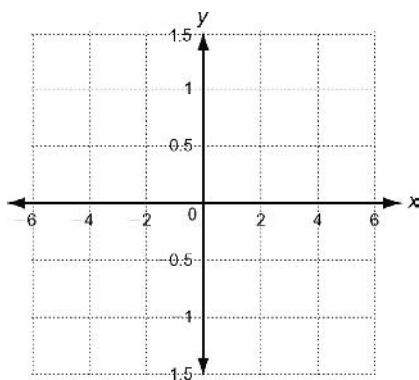
2.  $k(x) = 3\cos 2\pi x$



Using  $f(x) = \sin x$  or  $g(x) = \cos x$  as a guide, graph each function. Identify the x-intercepts and phase shift.

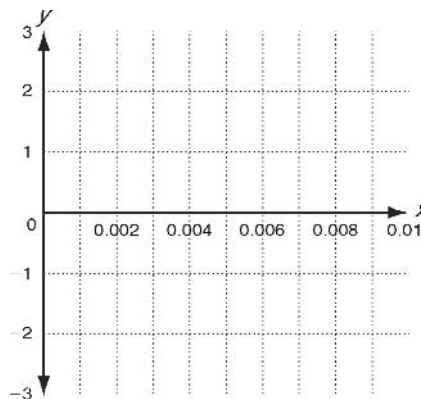
3.  $h(x) = \sin\left(x + \frac{\pi}{4}\right)$

4.  $h(x) = \cos\left(x - \frac{\pi}{4}\right)$



**Solve.**

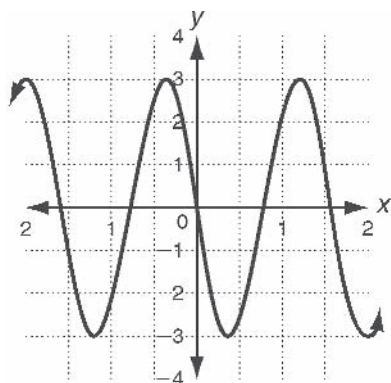
5. a. Use a sine function to graph a sound wave with a period of 0.002 second and an amplitude of 2 centimeters.
- b. Find the frequency in hertz for this sound wave.



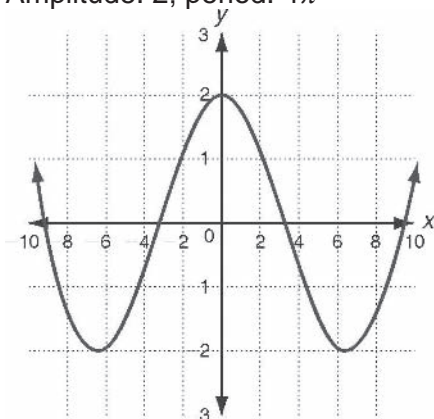
## 11-1 GRAPHS OF SINE AND COSINE

### Practice A

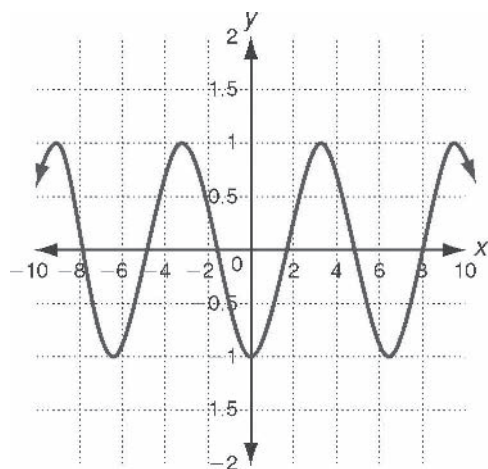
1. Periodic; 2
2. Not periodic
3. Amplitude: 3; period:  $\frac{\pi}{2}$



4. Amplitude: 2; period:  $4\pi$

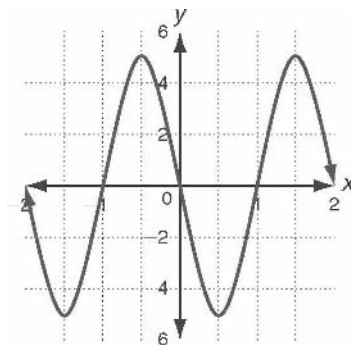


- a. Amplitude: 1; period:  $2\pi$
- b.  $\pi$  radians to the right
- c.  $\frac{\pi}{2} + n\pi$ , where  $n$  is an integer
- d. 1, -1
- e.

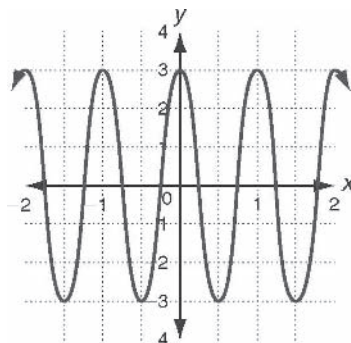


### Practice B

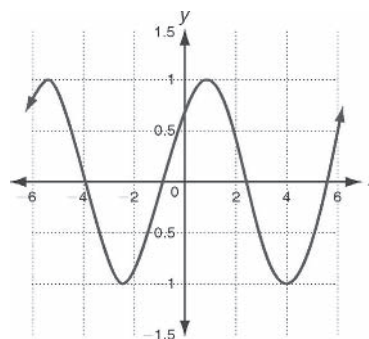
1. Amplitude: 5; period: 2



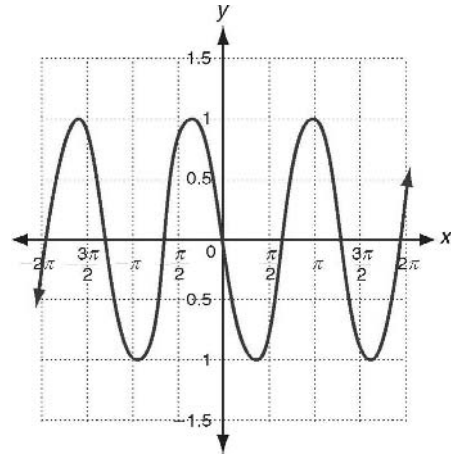
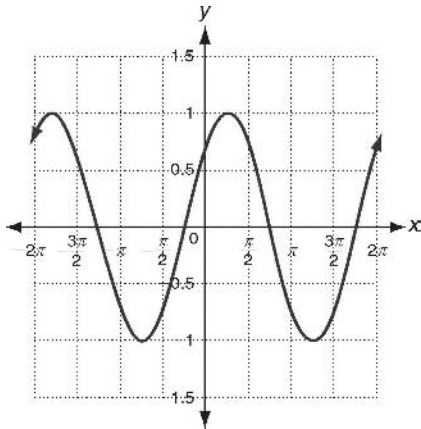
2. Amplitude: 3; period: 1



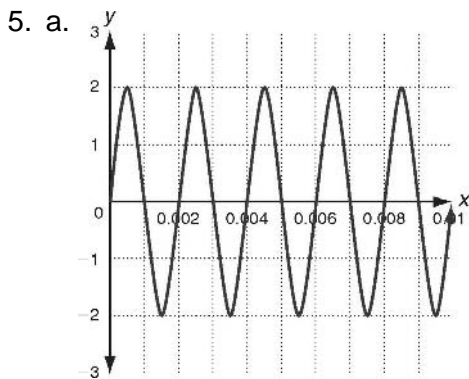
3. x-intercepts:  $\frac{3\pi}{4}, \frac{7\pi}{4}$ ; phase shift:  $\frac{\pi}{4}$   
radians to the left



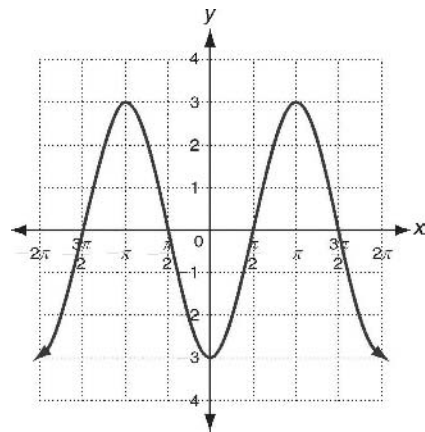
4. x-intercepts:  $\frac{3\pi}{4}, \frac{7\pi}{4}$ ; phase shift:  $\frac{\pi}{4}$  radians to the right



3. Amplitude: 3; period:  $2\pi$ , x-intercepts:  $\frac{\pi}{2}, \frac{3\pi}{2}$ ; phase shift:  $\pi$  radians to the left

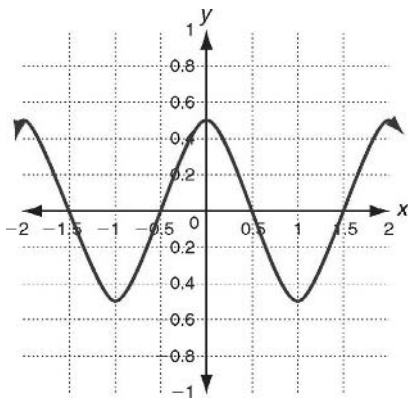


b. 500 Hz



### Practice C

1. Amplitude: 0.5; period: 2; x-intercepts: 0.5, 1.5; phase shift: 0



2. Amplitude: 1; period: 4; x-intercepts: 0, 2, 4; phase shift: 0

4. Amplitude: 2; period:  $2\pi$ , x-intercepts:  $\frac{\pi}{2}, \frac{3\pi}{2}$ ; phase shift:  $\frac{\pi}{2}$  radians to the right

