8.3 EXERCISES

1–10 ■ Graph the function.

1. $y = 2 + \sin x$

2. $y = -\sin x$

3. $y = 1 - \cos x$

4. $y = -1 + \cos x$

5. $y = 2 \cos x$

6. $y = -3 \sin x$

7. $y = 3 + 3 \cos x$

8. $y = 4 - 2 \sin x$

9. $y = |\sin x|$

10. $y = |\cos x|$

11–18 ■ Find the amplitude and period of the function, and sketch its graph.

11. $y = 3 \sin 3x$

12. $y = -2 \sin 2\pi x$

13. $y = 10 \sin \frac{1}{2}x$

14. $y = \cos 10\pi x$

15. $y = -\cos \frac{1}{3}x$

16. $y = \sin(-2x)$

17. $y = 3 \cos 3\pi x$

18. $y = 5 - 2 \sin 2x$

19–32 ■ Find the amplitude, period, and phase shift of the function, and graph one complete period.

19. $y = \cos\left(x - \frac{\pi}{2}\right)$

20. $y = 2 \sin\left(x - \frac{\pi}{3}\right)$

21. $y = -2 \sin\left(x - \frac{\pi}{6}\right)$

22. $y = 3 \cos\left(x + \frac{\pi}{4}\right)$

23. $y = 5 \cos\left(3x - \frac{\pi}{4}\right)$

24. $y = -4 \sin 2\left(x + \frac{\pi}{2}\right)$

25. $y = 2 \sin\left(\frac{2}{3}x - \frac{\pi}{6}\right)$

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

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

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

29. $y = -\frac{1}{2} \cos\left(2x - \frac{\pi}{3}\right)$

30. $y = 3 + 2 \sin 3(x + 1)$

31. $y = \sin(3x + \pi)$

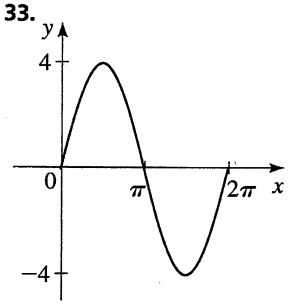
32. $y = \cos\left(\frac{\pi}{2} - x\right)$

33–38 ■ The graph of one complete period of a sine or cosine curve is given.

(a) Find the amplitude, period, and phase shift.
(b) Write an equation that represents the curve in the form

$y = a \sin k(x - b)$ or $y = a \cos k(x - b)$

33.



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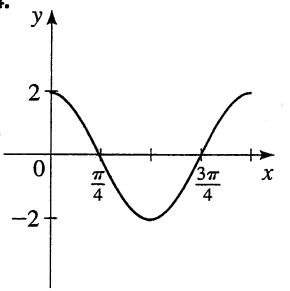

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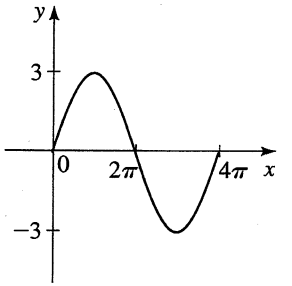

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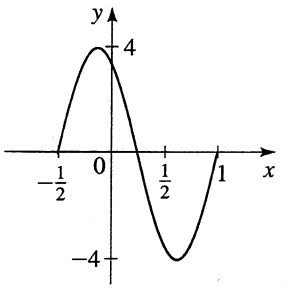

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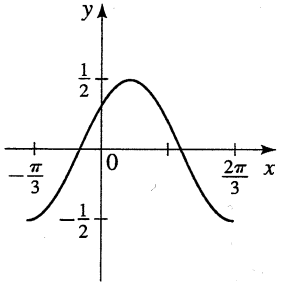

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