In Exercises 1–4, state the period, amplitude, and midline.

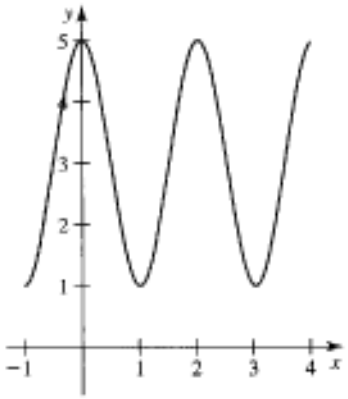
1. $y = 5\sin(4(t - 2)) + 3$
2. $y = 7\cos(0.5(t + 4)) - 2$
3. $y = 8\cos(2t)$
4. $y = 3\sin(\pi(t - 2)) - 0.8$

In Exercises 5–8, determine the vertical and horizontal shifts from a basic sine or cosine function.

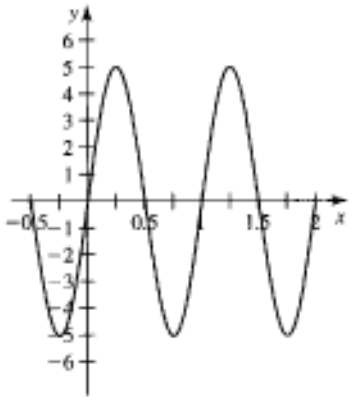
5. $y = 3\sin(7(t - 1)) + 2$
6. $y = -2\cos(t - 2) - 3.5$

In Exercises 13–20, find an equation for the sinusoidal function shown in the graph. You may use either sine or cosine.

14.



16.



In Exercises 21–25, find a possible equation for the trigonometric function whose values are shown in the table.

25.

x	y
1	0.5
3	0.7
5	0.5
7	0.3
9	0.5
11	0.7
13	0.5
15	0.3
17	0.5
19	0.7
21	0.5

42. Hours of Daylight The table displays the number of hours of daylight, H, in Seattle, Washington, d days after March 21, 2010. Use the table of values to answer the following questions. (*Hint:* Be sure to use Radian mode on your calculator.)

Days after March 21, 2010 d	**Number of Daylight Hours** H
0	12.20
30	14.07
60	15.45
90	15.98
120	15.53
150	14.21
180	12.36
210	10.48
240	9.04
270	8.43
300	8.80
330	10.06
360	11.88

***Source:* aa.usno.navy.mil**

a. Find an equation for the sinusoidal function, $H(d)$, to model the number of daylight hours in Seattle.

b. Use $H(d)$ to estimate when the number of daylight hours will be 13 hours.

c. Find the average rate of change of $H(d)$ from $d = 30$ to $d = 120$. What does this rate mean?