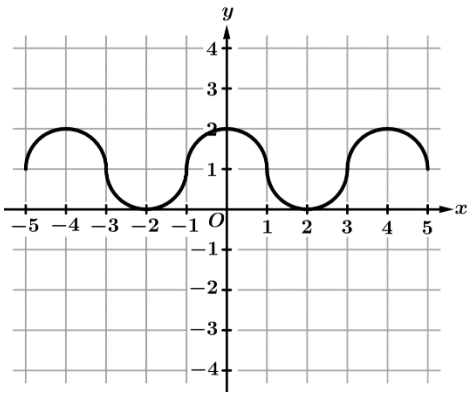
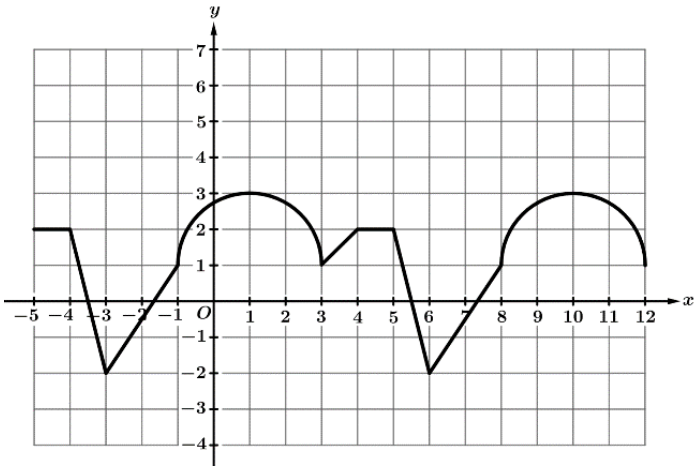


Graph of g

1. A portion of the graph of the periodic function g is shown above. What is the least possible value of the period of g?

2. Using the graph of g above, find the following values:

a) $g(9)$ b) $g(-12)$ c) $g(29)$

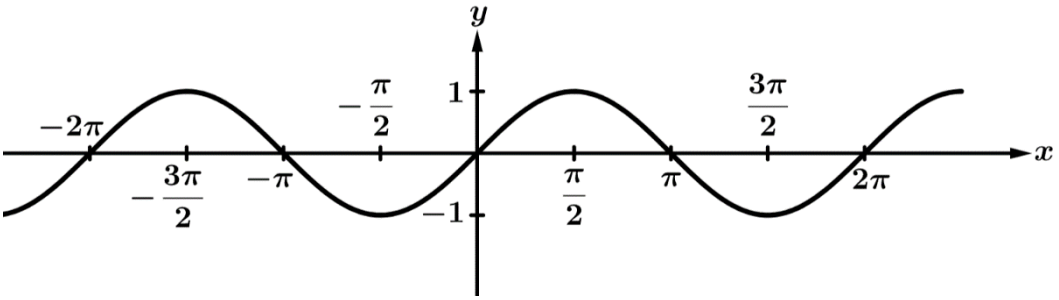


Graph of h

3. A portion of the graph of the periodic function h is shown above. What is the least possible value of the period of h?

4. Using the graph of h above, find the following values:

a) $h(13)$ b) $h(-12)$ c) $h(82)$

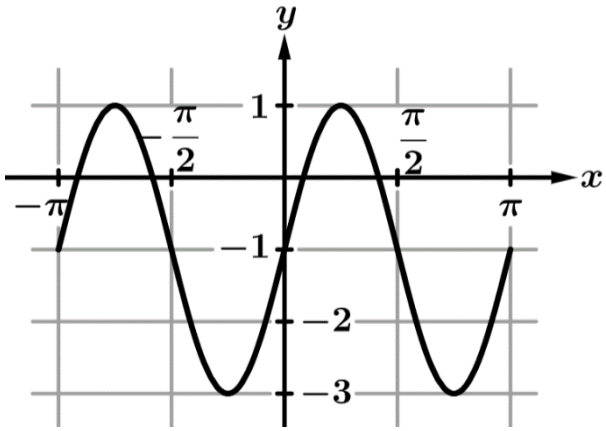


Graph of f

5. A portion of the graph of the periodic function f is shown above. What is the least possible value of the period of f?

6. Using the graph of f above, find the following values:

a) $f(10\pi)$ b) $f(-5\pi)$ c) $f\left(\frac{9\pi}{2}\right)$



Graph of k

7. Two complete cycles of the periodic function k are shown above. What is the period of k?

8. Using the graph of h above, find the following values:

a) $k(3\pi)$ b) $k\left(\frac{5\pi}{4}\right)$ c) $k\left(-\frac{5\pi}{2}\right)$

x	-3	0	1	10
$f(x)$	4	2	-1	7

9. The graph of f is periodic with a period of 7. Values of f are shown at selected values of x. Find the following.

a) $f(8)$

b) $f(-6)$

c) $f\big(f(10)\big)$

d) $f(7k+4)$, where k is an integer.

x	-6	0	3	7
$g(x)$	1	4	-2	5

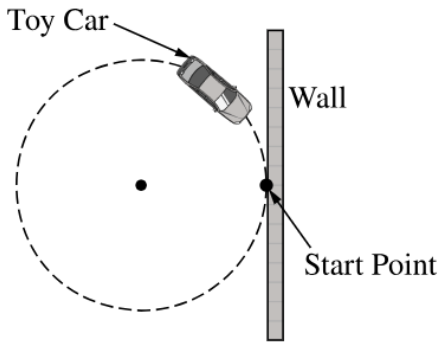
10. The graph of g is periodic where $g(x+10)=g(x)$. Values of g are shown at selected values of x. Find the following.

a) $g(27)$

b) $g(-7)$

c) $g\big(g(10)\big)$

d) $g(10k-3)$, where k is an integer.



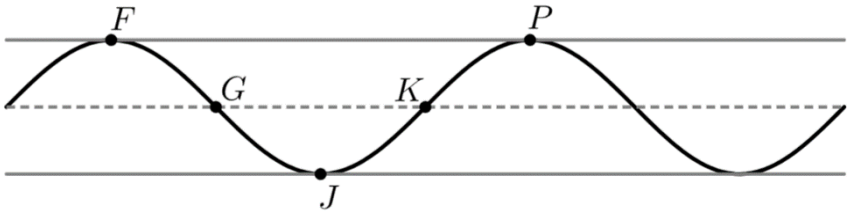
Note: Figure NOT drawn to scale

11. A toy car travels around a circular track as shown in the figure above. The center of the circular track is 20 inches away from the wall. At time $t = 0$ seconds, the distance between the toy car and the wall is 0 inches. The car completes one full lap around the track every 8 seconds. As the toy car travels around the track at a constant speed, the distance between the car and the wall periodically increases and decreases.

The periodic function d models the distance, in inches, between the toy car and the wall as a function of time t in seconds.

(A) The graph of d and its dashed midline for two full cycles is shown. Five points, $F, G, J, K,$ and P are labeled on the graph. No scale is indicated, and no axes are presented.

Determine possible coordinates $\left(t, d\left(t\right)\right)$ for the five points: $F, G, J, K,$ and P.



(B) Refer to the graph of d in part (A). The t-coordinate of J is t_1, and the t-coordinate of K is t_2.

(j) On the interval $\left(t_1, t_2\right)$, which of the following is true about d?

a. d is positive and increasing.

b. d is positive and decreasing.

c. d is negative and increasing.

d. d is negative and decreasing.

(ii) Describe how the rate of change of d is changing over the interval $\left(t_1, t_2\right)$.