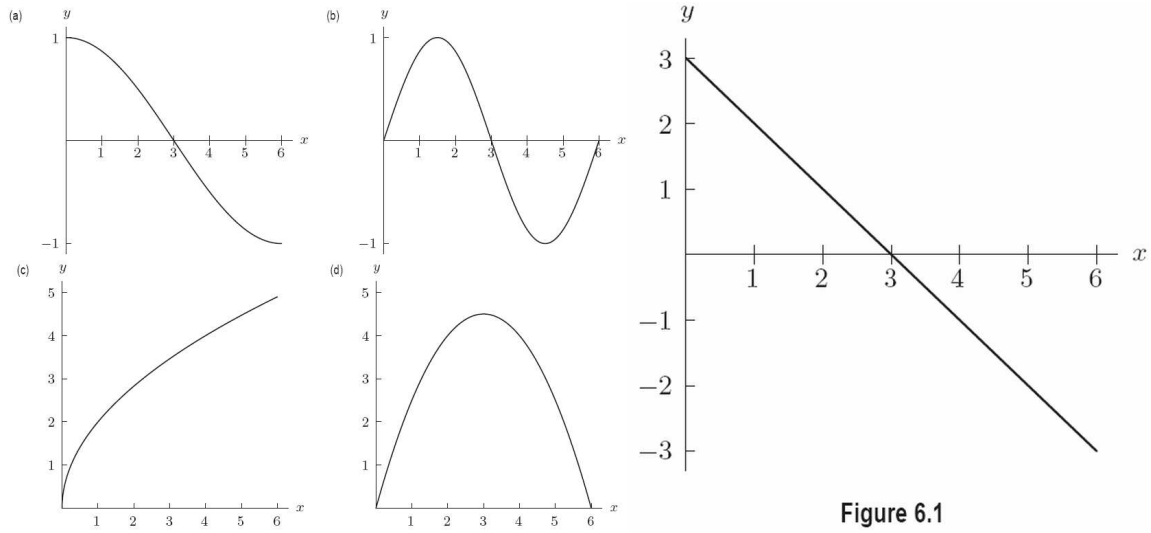
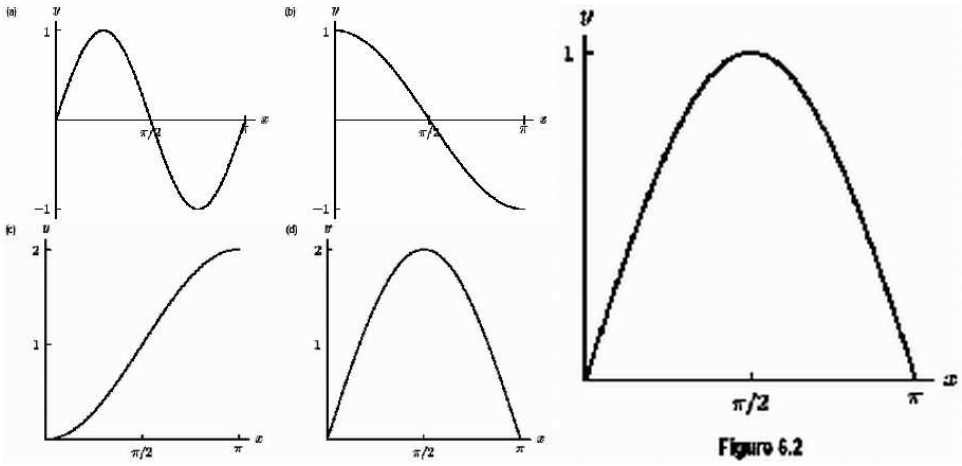
Classroom Voting Questions: Calculus II

Section 6.1 Antiderivatives Graphically and Numerically

1. Which of the graphs (a-d) could represent an antiderivative of the function shown in Figure 6.1.



2. Which of the graphs (a-d) could represent an antiderivative of the function shown in Figure 6.2.



3. Consider the graph of $f'(x)$ shown below. Which of the functions with values from the table could represent $f(x)$?

Table 6.1

	x	0	2	4	6
(a)	$g(x)$	1	3	4	3
(b)	$h(x)$	5	7	8	7
(c)	$j(x)$	32	34	35	34
(d)	$k(x)$	−9	−7	−6	−7

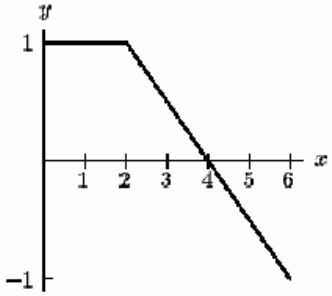


Figure 6.4

1. (a) only
2. (a), (b), and (c) only
3. All of them
4. None of them

4. Figure 6.4 shows $f'(x)$. If $f(2) = 5$, what is $f(0)$?

Table 6.1

	x	0	2	4	6
(a)	$g(x)$	1	3	4	3
(b)	$h(x)$	5	7	8	7
(c)	$j(x)$	32	34	35	34
(d)	$k(x)$	−9	−7	−6	−7

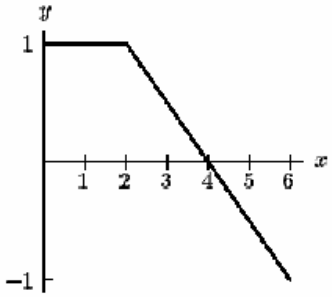


Figure 6.4

(a) 0
(b) 3
(c) 7
(d) Can't tell

5. The graph of f is given below. Let $F'(x) = f(x)$. Where does F have critical points?

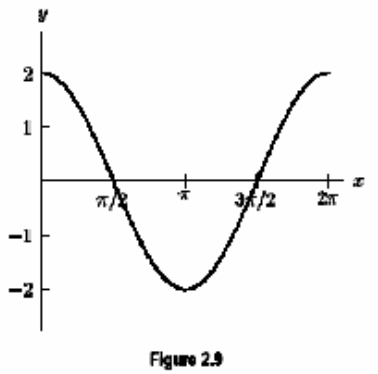


Figure 2.9

(a) $x = 0, \pi, 2\pi$

(b) $x = \pi$

(c) $x = \pi/2, 3\pi/2$

(d) None of the above

6. The graph of f is given below. Let $F'(x) = f(x)$. Where does F have a global max on $[0, 2\pi]$?

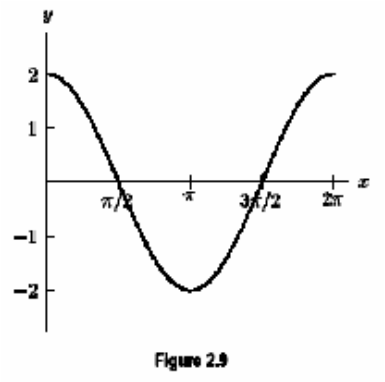


Figure 2.9

(a) $x = 0$

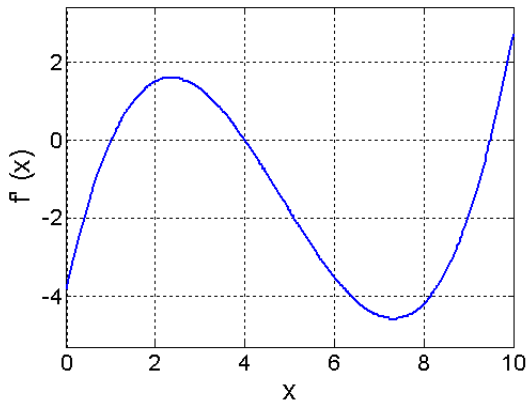
(b) $x = \pi/2$

(c) $x = \pi$

(d) $x = 3\pi/2$

(e) $x = 2\pi$

7. The derivative, f', of a function f is plotted below. At approximately what value of x does f reach a maximum, on the range $[0, 10]$?



(a) 1

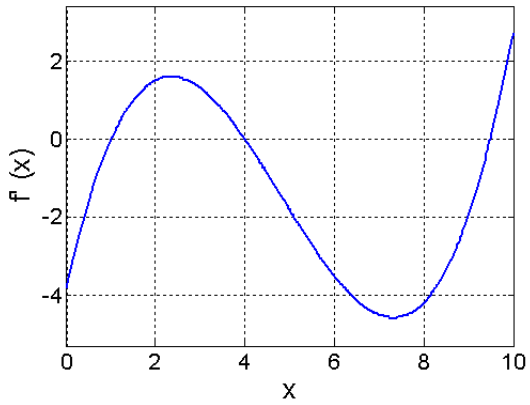
(b) 2.5

(c) 4

(d) 7

(e) 9.5

8. The derivative, f', of a function f is plotted below. If we know that the maximum value of f on this range is 20, what is $f(9.5)$?



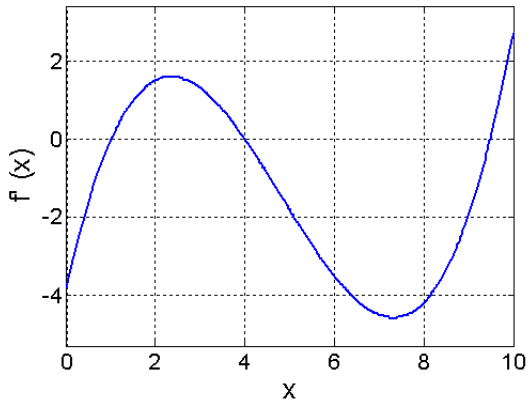
(a) $f(9.5) \approx 6$

(b) $f(9.5) \approx 14$

(c) $f(9.5) \approx -14$

(d) $f(9.5) \approx 34$

9. The derivative, f', of a function f is plotted below. When is f concave up?



(a) $x > 5$

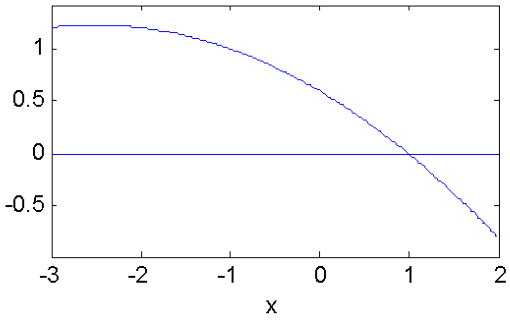
(b) $x < 5$

(c) $x < 2.5$ and $x > 7.5$

(d) $2.5 < x < 7.5$

(e) $1 < x < 4$ and $x > 9.5$

10. The graph below shows the second derivative, f'' of a function, and we know $f(1) = 3$ and $f'(1) = 0$. Is $f'(2)$ positive or negative?

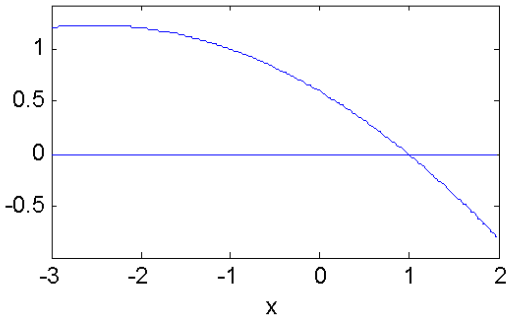


(a) $f'(2) > 0$

(b) $f'(2) < 0$

(c) It is impossible to tell without further information.

11. The graph below shows the second derivative, f'' of a function, and we know $f(1) = 3$ and $f'(1) = 0$. Is $f(-3)$ bigger than 3 or smaller than 3?

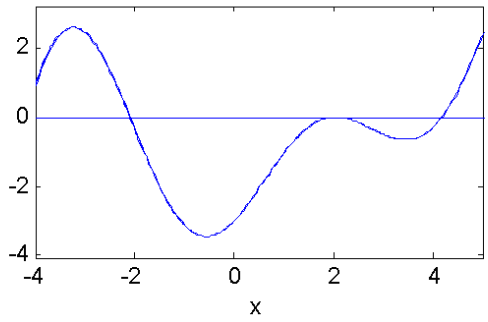


(a) $f(-3) > 3$

(b) $f(-3) < 3$

(c) It is impossible to tell without further information.

12. The figure below is the graph of $f'(x)$. Where is the global maximum of f on $[-4, 4]$?



(a) $x = -3.2$

(b) $x = -2$

(c) $x = -0.8$

(d) $x = 2$

(e) $x = 4$