Calculus Web Assignments

Web Assignments are intended to be completed with a partner. Both partners should individually work each of the problems, followed by a collaborative discussion about the problem.

Both partners are required to participate in the "Honor-System" Grading of the Web Assignment.

Calculus: Web Assignment #4

Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 1. If $f(x) = 3x + 2$ then the graph of the derivative of $f(x)$ is

a. a horizontal line
b. a line with a positive slope
c. a line with a negative slope
d. not a line
e. a vertical line

____ 2. For $x \geq 0$, the horizontal line $y = 2$ is an asymptote for the graph of the function f. Which of the following statements must be true?

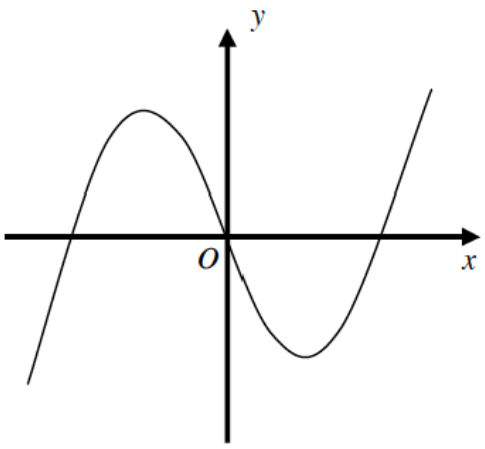
a. $f(0) = 2$
b. $f(x) \neq 2$ for all $x \geq 0$
c. $f(2)$ is undefined
d. $\lim_{x \to 2} f(x) = \infty$
e. $\lim_{x \to \infty} f(x) = 2$

____ 3. GIven the function $f(x) = \begin{cases} \sin 2x & x \leq \pi \\ 2x + k & x > \pi \end{cases}$

what value of k will make this piecewise function continuous?

a. -2π
b. $-\pi$
c. 0
d. π
e. 2π

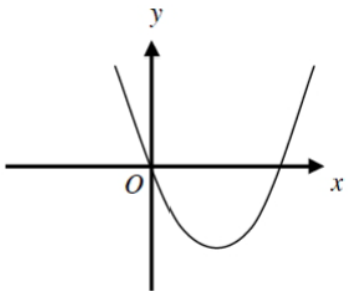
____ 4.



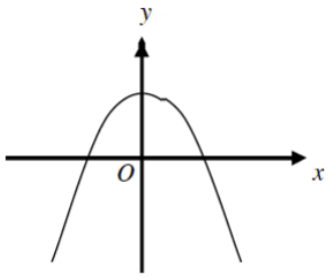
Graph of f

The graph of a function f is shown above. Which of the following could be the graph of the derivative of f ?

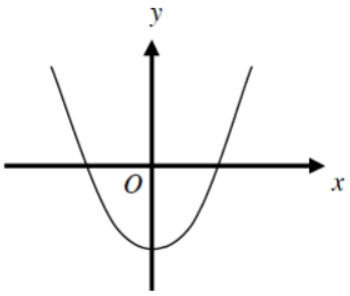
a.



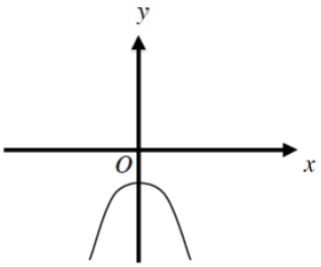
c.



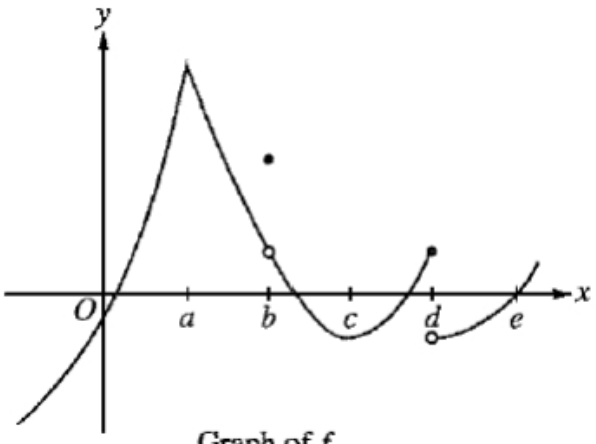
b.



d.



____ 5.



Graph of f

The graph of a function f is shown above. At which values of x is f continuous, but not differentiable?

a. a
b. b
c. c
d. d
e. e

____ 6. If the line tangent to the graph of the function f at the point $(1, 7)$ passes through the point $(-2, -2)$, then $f'(1)$ is

a. -5
b. 1
c. 3
d. 7
e. undefined

____ 7. Let f be the function defined by $f(x) = 4x^3 - 5x + 3$. Which of the following is an equation of the line tangent to the graph of f at the point where $x = -1$?

a. $y = 7x - 3$
b. $y = 7x + 7$
c. $y = 7x + 11$
d. $y = -5x - 1$
e. $y = -5x - 5$

____ 8.

$$f(x) = \begin{cases} x+2 & x \le 3 \\ 4x-7 & x > 3 \end{cases}$$

Let f be the function given above. Which of the following statements are true about f ?

I. $\lim_{x \to 3} f(x)$ exists.

II. f is continuous at $x = 3$

III. f is differentiable at $x = 3$

a. None
b. I only
c. II only
d. I and II only
e. I, II, and III

____ 9. If $p(x)$ is a continuous function on the closed interval $[1, 3]$, with $p(1) \le k \le p(3)$ and c is in the closed interval $[1, 3]$, then which of the following statements must be true?

a. $p(c) = \dfrac{p(3) + p(1)}{2}$

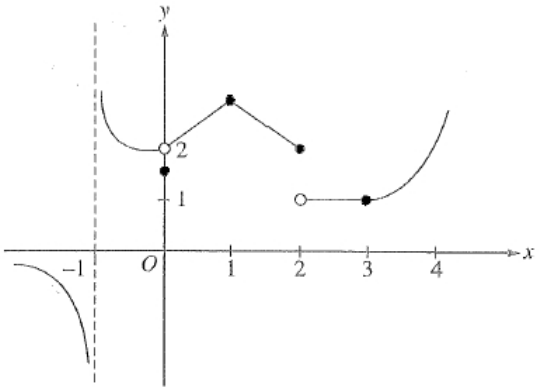
b. $p(c) = \dfrac{p(3) - p(1)}{2}$

c. There is at least one value c such that $p(c) = k$.

d. There is only one value c such that $p(c) = k$

e. $c = 2$

____ 10.



The graph of a function f is shown above. If $\lim_{x \to b} f(x)$ exists and f is not continuous at b, then b =

a. -1
b. 0
c. 1
d. 2
e. 3