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 #5

Multiple Choice

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

____ 1. The y-intercept of the line tangent to $y = x\sin x$ at $x = \pi$ is

a. $-\pi$
b. π
c. $-\pi^2$
d. π^2
e. 1

____ 2. Find y' if $y = -\dfrac{\cos x}{x}$

a. $\dfrac{x\sin x - \cos x}{x^2}$
b. $\dfrac{x\sin x + \cos x}{x^2}$
c. $\dfrac{\sin x}{x}$
d. $\dfrac{\sin x - x}{x^2}$
e. $\dfrac{x\sin x - 1}{x^2}$

____ 3. The average rate of change of $f(x) = mx + b$ on the interval $[a, c]$ is

a. 0
b. 1
c. m
d. $\dfrac{mc - ma + 2b}{c - a}$
e. $m(c - a)$

____ 4. If the average rate of change of a function on $[a, b]$ equals zero, then the graph of the function

a. can be a line with a positive slope
b. can be a quadratic
c. cannot be a horizontal line
d. can be a line with a negative slope
e. is a vertical line

____ 5. A differentiable function f has the properties that $f(5) = 3$ and $f'(5) = 4$. Given this information, write the equation of the tangent line at $x = 5$.

a. $y - 5 = 4(x - 3)$
b. $y - 4 = 3(x - 5)$
c. $y - 5 = 3(x - 4)$
d. $y - 4 = 5(x - 3)$
e. $y - 3 = 4(x - 5)$

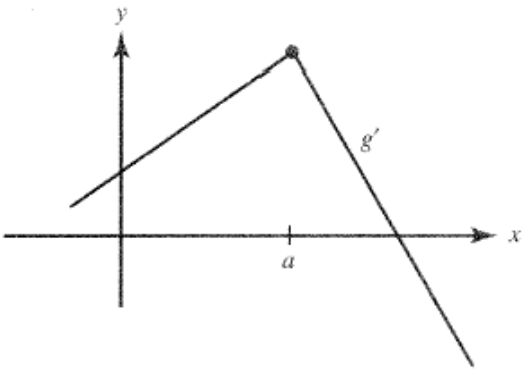
____ 6. Differentiable functions f and g have the values shown in the table.

x	f	f'	g	g'
0	2	1	5	–4
1	3	2	3	–3
2	5	3	1	–2
3	10	4	0	–1

If $A = f + 2g$, then $A'(3) =$

a. -2
b. 2
c. 7
d. 8
e. 10

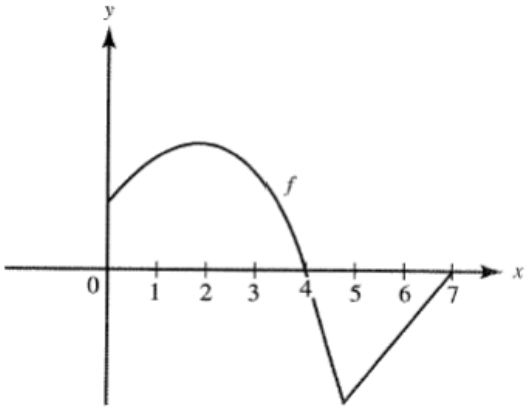
____ 7. The graph of g' is shown here. Which of the following statements are true of g at $x = a$?



I. g is continuous
II. g is differentiable
III. g is increasing

a. I only
b. III only
c. I and III only
d. II and III only
e. I, II, and III

____ 8. The function f whose graph is shown has $f'(x) = 0$ at $x =$

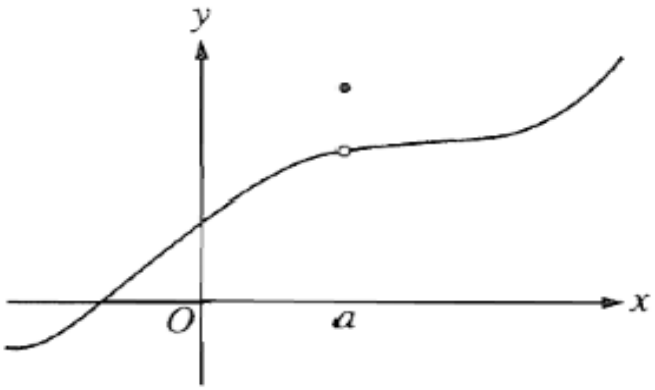


a. 2 only
b. 2 and 5
c. 4 and 7
d. 2, 4, and 7
e. 2, 4, 5, and 7

____ 9. The $\lim_{\Delta x \to 0} \dfrac{\tan 3(x+\Delta x) - \tan(3x)}{\Delta x}$ is

a. 0
b. $3\sec^2(3x)$
c. $\sec^2(3x)$
d. $3\cot(3x)$
e. D.N.E.

____ 10. The graph of a function f is shown abobe. Which of the following statements about f is false?



a. f has a relative maximum at $x = a$
b. $x = a$ is in the domain of f
c. f is continuous at $x = a$
d. $\lim_{x \to a^+} f(x)$ is equal to $\lim_{x \to a^-} f(x)$
e. $\lim_{x \to a} f(x)$ exists