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 #10

Multiple Choice

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

____ 1. Find the number c that satisfies the conclusion of the Mean Value Theorem on the given interval.

$f(x) = 2\sqrt{x}, \ [0,9]$

Select the correct answer.

a. $c = 9/4$
b. $c = 0$
c. $c = 1/4$
d. $c = 5$
e. none of these

____ 2. How many points of inflection are on the graph of the function?

$f(x) = 18x^3 + 5x^2 - 12x - 17$

Select the correct answer.

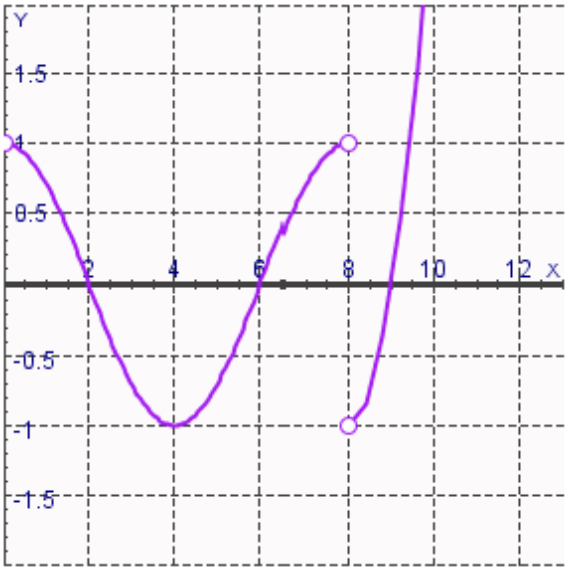
a. 1
b. 2
c. 4
d. 3
e. 5

____ 3. Find the absolute maximum value of $y = \sqrt{36 - x^2}$ on the interval $[-6, 6]$.

Select the correct answer.

a. 5
b. 6
c. 7
d. 0
e. 1

____ 4. The graph of the derivative $f'(x)$ of a continuous function f is shown. On what intervals is f decreasing?



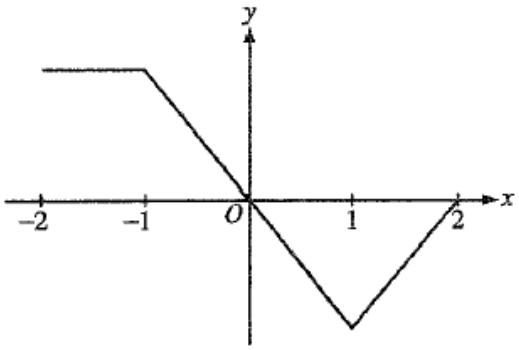
Select the correct answer.

a. $(2,6)\cup(8,9)$
b. $(-1,1)$
c. $(8,9)$
d. $(2,6)$
e. none of these

____ 5. The top of a 25-foot ladder is sliding down a vertical wall at a constant rate of 3 feet per minute. When the top of the ladder is 7 feet from the ground, what is the rate of change of the distance between the bottom of the ladder and the wall?

a. $-\frac{7}{8}$ feet per minute
b. $-\frac{7}{24}$ feet per minute
c. $\frac{7}{24}$ feet per minute
d. $\frac{7}{8}$ feet per minute
e. $\frac{21}{25}$ feet per minute

____ 6.



Graph of f'

The graph of f', the derivative of the function f, is shown above. Which of the following statements is true about f?

a. f is decreasing for $-1 \le x \le 1.$
b. f is increasing for $-2 \le x \le 0.$
c. f is increasing for $1 \le x \le 2.$
d. f has a local minimum at $x = 0.$
e. f is not differentiable at $x = -1$ and $x = 1.$

____ 7. $\int_{1}^{2} \left(4x^3 - 6x\right) dx =$

a. 2
b. 4
c. 6
d. 36
e. 42

____ 8. Let f be a function such that $\lim_{h \to 0} \frac{f(5+h) - f(5)}{h} = 3$ Which of the following must be true?

I. $f(5) = 3$
II. $f'(5) = 3$
III. f is continuous and differentable at x = 5.

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

____ 9. The average value of $\sqrt{x}$ over the interval $0 \le x \le 2$ is

a. $\frac{1}{3}\sqrt{2}$

b. $\frac{1}{2}\sqrt{2}$

c. $\frac{2}{3}\sqrt{2}$

d. 1

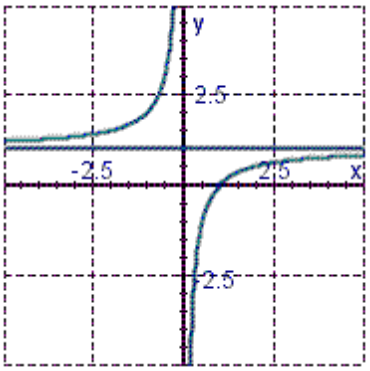
e. $\frac{4}{3}\sqrt{2}$

____ 10. Graph the curve and the tangent line at the point (2, 2).

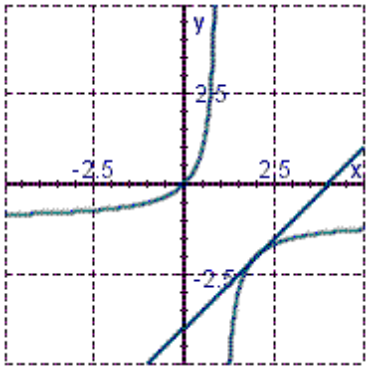
$$y = \frac{x}{x-1}$$

a.

c.



b.



d.