

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.

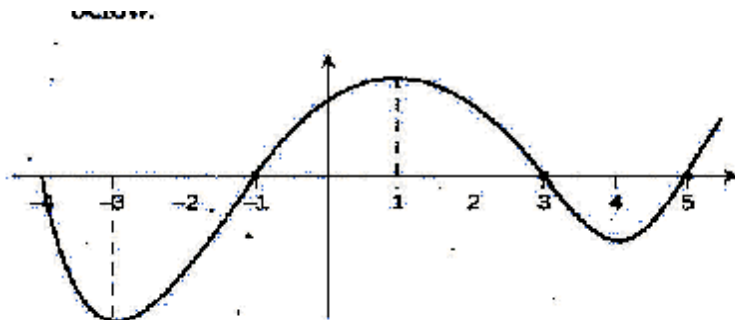
Calculus: Web Assignment #16

Multiple Choice

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

- _____ 1. The graph of $y = 5x^4 - x^5$ has a point of inflection at
- a. (0, 0) only
 - b. (0, 0) and (3, 162)
 - c. (3, 162) only
 - d. (0, 0) and (4, 256)
 - e. (4, 256) only

- _____ 2. The graph of the function $y = h(x)$ appears below.



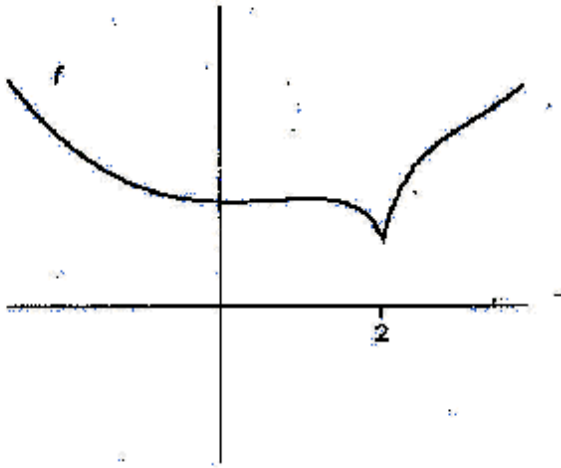
Determine the zeros of the derivative function $h'(x)$

- a. $x = -4, -1, 3, 5$
 - b. $x = -2, -1, 2.5$
 - c. $x = 1, 4$
 - d. $x = -3, 1, 4$
 - e. $x = -2, 2.5$
- _____ 3. Find the average value of the function $f(t) = t \sin(t^2)$ on the interval $[0, 20]$. Round your answer to 3 decimal places.

Select the correct answer.

- a. 0.381
- b. 0.008
- c. 0.028
- d. 0.038
- e. none of these

_____ 4. The graph of a function, f , is given below. Based on the graph, which of the following statements is true? _____



- | | |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| a. f is continuous and differentiable everywhere, and $f'(2) = 0$ | d. f is discontinuous at the point $x = 2$, f is differentiable everywhere, and $f'(2) = 0$ |
| b. f is continuous everywhere and differentiable everywhere except at the point $x = 2$. | e. None of the above |
| c. f is discontinuous at the point $x = 2$, and f is differentiable everywhere except at the point $x = 2$ | |

_____ 5. Determine the slope of the normal line to the curve $x^3 + xy^2 = 10y$ at the point $(2, 1)$.

- | | |
|-------------------|--------------------|
| a. 0 | d. $-\frac{6}{13}$ |
| b. 2 | e. $\frac{1}{2}$ |
| c. $-\frac{7}{3}$ | |

_____ 6. If $f(x) = x^2 - x + 4$, evaluate the difference quotient $\frac{f(a+h) - f(a)}{h}$.

Select the correct answer.

- h
- $2a - 2$
- $2a - h - 2$
- $2a + h - 2$
- none of these

_____ 7. 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

_____ 8. Find the area of the region that lies under the given curve. Round the answer to three decimal places.

$$y = \sqrt{2x+2}, 0 \leq x \leq 1$$

Select the correct answer.

- a. 1.834
- b. 1.727
- c. 1.704
- d. 1.724
- e. 1.824

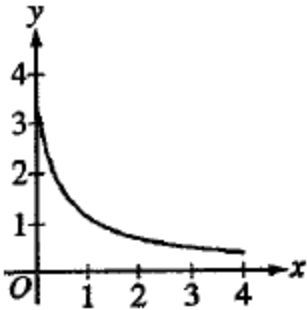
_____ 9. Find the volume of the solid obtained by rotating the region bounded by the given curves about the specified axis.

$$y = x^2 + 4, y = 12 - x^2; \text{ about } y = -1$$

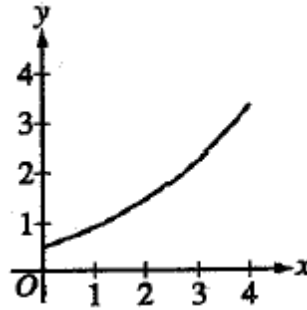
Select the correct answer.

- a. 384π
- b. 128π
- c. 128
- d. 96π
- e. none of these

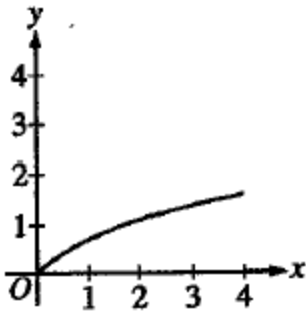
10. If a trapezoidal sum overapproximates $\int_0^4 f(x) dx$, and a right Riemann sum underapproximates $\int_0^4 f(x) dx$, which of the following could be the graph of $y = f(x)$?



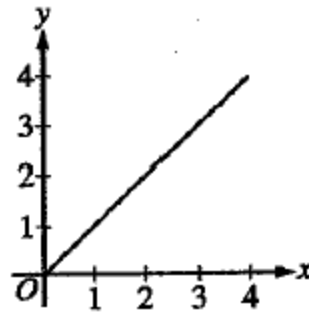
a.



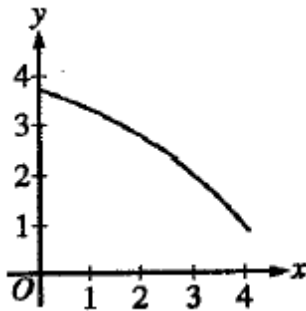
d.



b.



e.



c.