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 #12

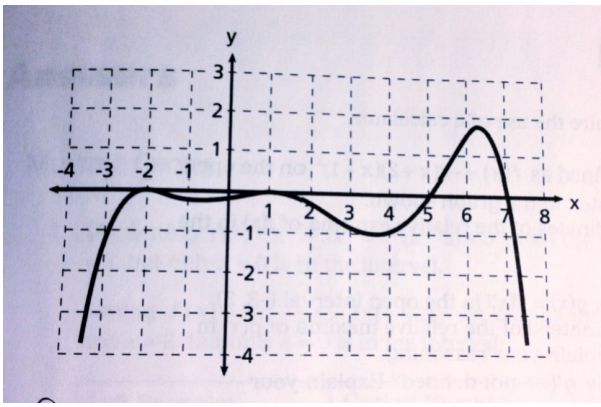
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A calculator may be used for the following question:

Let $f(x)$ be a function such that $f'(x) = \ln x \cdot \cos x + \dfrac{\sin x}{x}$. In the interval $0 < x < 3$, the graph of $f(x)$ has a point of inflection nearest $x =$

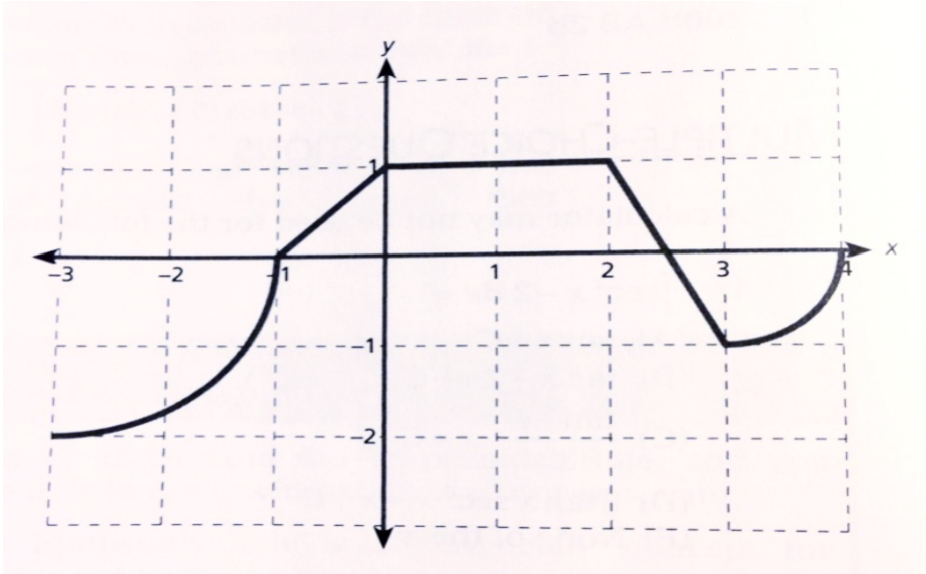
a. 0.352
b. 1.101
c. 2.128
d. 2.259
e. 2.901

____ 2. Based on the graph of $g''(x)$ pictured below, how many points of inflection exist for the twice differentiable function $g(x)$ on the interval $-4 < x < 8$?



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

____ 3. The graph of $f(x)$, shown below, consists of line segments and quarter circles. What is the value of $\int_{-3}^{4} f(x)dx$?



a. $\dfrac{10-5\pi}{4}$

b. $\dfrac{10+5\pi}{4}$

c. $\dfrac{12+5\pi}{4}$

d. $\dfrac{12-5\pi}{4}$

e. None of these

____ 4. Let R be the region between the function $f(x) = x^3 + 6x^2 + 10x + 4$, the x-axis, and the lines $x = 0$ and $x = 4$. Using the Trapezoidal Rule, computer the area when there are four equal subdivsions.

a. 196
b. 288
c. 296
d. 396
e. None of these

____ 5. What is $f(x)$ if $f'(x) = \dfrac{2x}{x^2 - 1}$ and $f(2) = 0$?

a. $f(x) = \ln\left|x^2 - 1\right|$

b. $f(x) = \ln\left|x^2 - 1\right| - \ln 3$

c. $f(x) = \ln\left|x^2 - 1\right| + \ln 3$

d. $f(x) = 2\ln x - x^2$

e. $f(x) = 2\ln x - x^2 - 2\ln 2 + 4$

____ 6. If $\int_1^3 f(x)dx = k$ and $\int_1^7 f(x)dx = -4$, what is the value of $\int_7^3 x + f(x)dx$?

a. k + 4
b. k - 4
c. 16 - k
d. -16 - k
e. -16 + k

____ 7. Evaluate: $\lim\limits_{\theta \to 0} \dfrac{\sin^2 2\theta}{2\theta} =$

a. $-\infty$
b. -1
c. 0
d. 1
e. ∞

____ 8.

x	*f(x)*	*g(x)*	*f ' (x)*	*g ' (x)*
1	7	1	-1	6
2	4	3	6	-1
3	2	2	5	5

Using the data in the table above, find the value of h'(3) if h(x) = f(g(x))

a. 35
b. 30
c. 25
d. 20
e. 15

____ 9. Evaluate: $\frac{d}{dx}\ln(12x+4) =$

a. $\frac{1}{12x+4}$

b. $\frac{1}{12x}$

c. $\frac{1}{x}$

d. $\frac{12}{12x+4}$

e. None of the above

____ 10. What is the average value of $3t^3 - t^2$ over the interval $-1 \le t \le 2$?

a. $\frac{11}{4}$

b. $\frac{7}{2}$

c. 8

d. $\frac{33}{4}$

e. 16