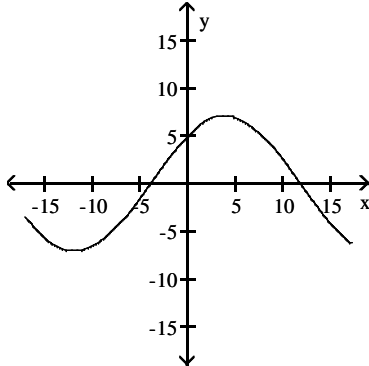Chapter 3 Practice Quiz– Calculus

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

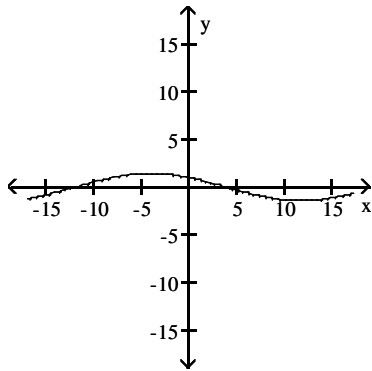**The graph of a function is given. Choose the answer that represents the graph of its derivative.**

1)   1) _____

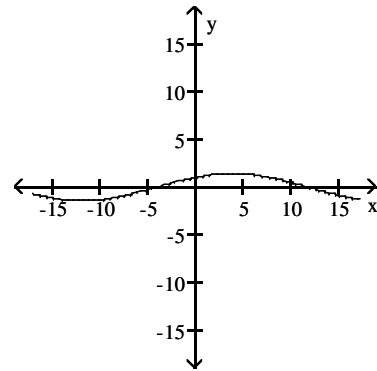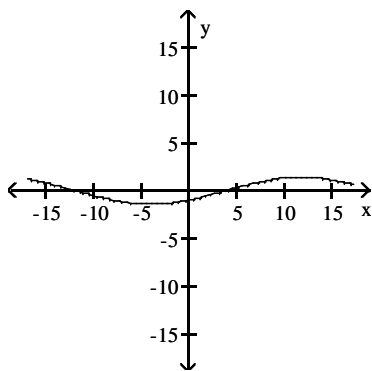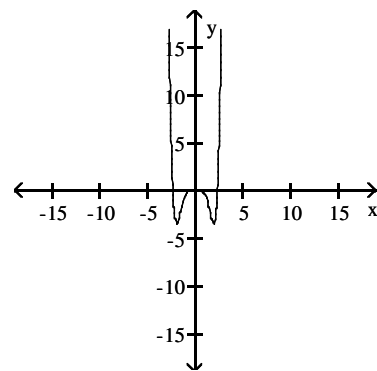A)   B)

C)   D)

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem.

2) If $y = x^3 - 4x - 1$, find an equation of the tangent line to the graph of y at $x = 2$.   2) _____

If the function is not differentiable at the given value of x, tell whether the problem is a corner, cusp, vertical tangent, or a discontinuity (be able to identify ALL non differentiable types– corner, cusp, discontinuity, or vertical tangent).

3) $y = 2 - \sqrt[3]{x}$, at $x = 0$ 3) _____

Determine the values of x for which the function is differentiable.

4) $y = \dfrac{1}{x^2 - 81}$

4) _____

Find the horizontal tangents of the curve.

5) $y = 4x^2 + 8x + 6$

5) _____

Find dy/dx.

6) $y = \dfrac{1}{2}x^{10} - \dfrac{1}{3}x^3$

6) _____

7) $y = 3x^2 + 8x + 3x^{-3}$

7) _____

8) $y = (x^2 - 5x + 2)(4x^3 - x^2 + 5)$

8) _____

9) $y = \dfrac{8x^2 + x - 1}{x^3 - 9x^2}$

9) _____

Suppose u and v are differentiable functions of x. Use the given values of the functions and their derivatives to find the value of the indicated derivative.
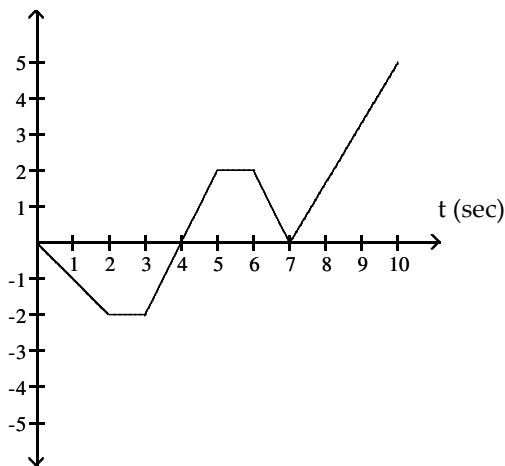
10) $u(2) = 10$, $u\,'(2) = 2$, $v(2) = -3$, $v\,'(2) = -5$.

$\dfrac{d}{dx}\left(\dfrac{v}{u}\right)$ at $x = 2$

10) _____

The figure shows the velocity v of a body moving along a coordinate line as a function of time t . Use the figure to answer the question.

11) v (ft/sec)

11) _____

When is the body's acceleration equal to zero?

Solve the problem.

12) At time t, the position of a body moving along the s-axis is $s = t^3 - 15t^2 + 72t$ m. Find the body's acceleration each time the velocity is zero.

12) _____

2

Answer Key
Testname: CHAPTER 3 CALCULUS PRACTICE QUIZ

1) A
2) $y = 8x - 17$
3) vertical tangent
4) All reals except -9 and 9
5) At $x = -1$
6) $5x^9 - x^2$
7) $6x + 8 - 9x^{-4}$
8) $20x^4 - 84x^3 + 39x^2 + 6x - 25$
9) $\dfrac{-8x^4 - 2x^3 + 12x^2 - 18x}{(x^3 - 9x^2)^2}$
10) $-\dfrac{11}{25}$
11) $2 < t < 3, 5 < t < 6$
12) $a(6) = 6$ m/sec^2, $a(4) = -6$ m/sec^2