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Homework Set 1 due 1/27/04 at 10:59 PM

MATH 1210-90 Spring 2004

You may need to give 4 or 5 significant digits for some (floating point) numerical answers in order to have them accepted by the computer.

1.(1 pt) a. Find the slope of the line passing through the points (8,4) and (9,4).

b. Find the slope of the line passing through the points (3,7) and (8,7).

2.(1 pt) Find the equation of the line passing through the point (9,-5) with slope 6.
 $y =$ _____

3.(1 pt) The equation of the line passing through the point $(-9, -5)$ which is perpendicular to the line given by the equation $5x + 5y = 1$ is $y = Ax + B$ where $A =$ _____ $B =$ _____

4.(1 pt) Find the equation of the line passing through the point $(-2, -1)$ and parallel to the line passing through $(-1, -2)$ and $(-5, -2)$.
 $y =$ _____

5.(1 pt) Find the equation of the line which bisects the line segment from $(0,0)$ to $(2,2)$ at right angles.
 $y =$ _____

6.(1 pt) Find the derivative of $f(x) = 3x - 4$.
 $f'(x) =$ _____

7.(1 pt) Find the equation of the line tangent to the curve

$$y = 3x^2 - 4x + 2$$

at the point

$$(4, 34).$$

$y =$ _____

8.(1 pt) Find the derivative of $f(x) = x^6 - 1x^4 + 6x$.
 $f'(x) =$ _____

9.(1 pt) Find the slope of the curve $y = 5x^3 - 4x^2$ at the point $(1, 1)$.

$m =$ _____

10.(1 pt) For what values of x does the curve $y = x^2 - 2x + 3$ have:

Positive slope? _____

Negative slope? _____

Zero slope? $x =$ _____

Your answer to parts 1 and 2 should be an interval (a, b) . Use INF for $+\infty$, -INF for $-\infty$.

11.(1 pt) A ball is thrown straight up so its height t seconds later is $-16t^2 + 32t + 6$.

a. Find the velocity of the ball at t seconds after it is thrown.

b. At what time does the ball reach its maximum height?

$t =$ _____

c. Find the acceleration of the ball at any time t .
 $a =$ _____

12.(1 pt) If $f(x) = 3x^2 - 3x - 33$, find $f'(x)$.

Find $f'(2)$.

13.(1 pt) If $f(x) = (7x^2 - 3)(2x + 4)$, find $f'(x)$.

[NOTE: Your answer should be a function in terms of the variable 'x' and not a number!]

14.(1 pt) Find the slope of the curve $y = 5x^3 - 5x^2 + 2x + 6$ at the point where $x = 3$.

Slope at $x = 3$: _____