Math 1100 Lesson # 2 **Name:**_____

Directions:Work all problems in the assignment. If you need more room use the back of the page to complete the problem.

Section 2.1

Problem 18. Use the limit definition to find the derivative of the following function.

$$f(x) = -\frac{1}{2}x + 5$$

Problem 28. Find the slope of the tangent line to the function

$$f(x) = 2x + 4$$

at the point $(1, 6)$.

Problem 46. Compute the equation of a line tangent to the graph of the given function.

$$f(x) = x^2 + 1$$

that is parallel to the line defined by $2x + y = 0$.

Section 2.2

Problem 12. Find the derivative of the following function.

$$y = x^3 - 9x^2 + 2$$

Problem 18. Find the derivative of the following function.

$$g(x) = 4\sqrt[3]{x} + 2$$

Problem 30. Compute the value of the derivative of the given function at the given point.

$$y = 3x\left(x^2 - \frac{2}{x}\right) \qquad (2, 18)$$

Problem 40. Compute the derivative of the following function.

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

Problem 48. Find an equation for the tangent line to the graph of the following function at the given point.

$$y = x^3 + x \qquad (-1, -2)$$

Problem 52. Determine the points at which the following function has a horizontal tangent line.

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

Student ID: _____

Dept. & Number: Math 1100

Lesson Number: 2

Name: _____

Address: _____
Street Apt.

_____
City State Zip Code

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Date: _____

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Read By: _____

Comments: _____

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