

Name \_\_\_\_\_

Homework 7

Section 3.1

**Be sure to use only algebra and material through section 3.1 for this assignment.**

1. (4ea) Determine the derivative of each function below. *Be careful with notation.*

(a)  $f(x) = 5x^4 - 6x^2 + 7x + 9$

(b)  $y = (x^3 + x) \left(4 + \frac{2}{x}\right)$

(c)  $g(x) = \frac{4}{x^2} + \frac{x^2}{4} + 4^2$

2. (4) Determine the slope of the line which is tangent to the graph of  $h(x) = 10\sqrt{x} + \frac{8}{x} + 11$  at the point  $(4, 33)$

3. (5) Find the equation of the line which is tangent to the graph of  $f(x) = x^3 - 5x^2 - 8x + 7$  at the point where  $x = -1$ . Write your answer in slope-intercept form.