Name _____

Homework 6
Sections 3.1 & 3.2

Be sure to use only algebra and material through section 3.2 for this assignment.

1. (3ea) Determine the derivative of each function below. *Be careful with notation.*

   (a) $f(x) = 6x^4 - 5x^2 + 9x + 7 + \frac{3}{x^2}$

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

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

2. (3) Find $f'(1)$ for $f(t) = t^4 + (\ln 4)t + (\ln 4)^t$.

3. (3) Given the function $f(x) = \dfrac{6x^3 - 9x + 12}{2x}$, find $f'(x)$. *Read the directions at the beginning of this assignment!*

4. (5) Find the equation of the line which is tangent to the graph of $f(x) = x^4 - 5x^2 - 9x + 8$ at the point where $x = -1$. Write your answer in slope-intercept form.