

**Instructions:** Please work the following problems on other pieces of paper. You must show all work and calculations in order to receive full credit. I would prefer to collect your assignments in class on the day it is due, but I will accept it as late as 5:00 PM on the due date. Assignments submitted later will receive 50% credit.

1. Section 4.1 # 28.
2. Determine the equation of the line tangent to  $f(x) = (x^2 + 3x - 9)^4$  at the point  $(2, 1)$ . Write your answer in slope-intercept form.
3. Section 4.1 # 50.
4. Let  $F(x) = (2x - 7)^5(4x - 1)^3$ . Find  $F'(x)$ , and simplify your answer as far as possible.
5. Let  $G(x) = \left(\frac{7x - 3}{5x - 4}\right)^3$ . Find  $G'(x)$ , and simplify your answer as far as possible.
6. If  $g(x) = \ln\left(\sqrt[3]{(3x + 2)^2}\right)$ , determine  $g'(x)$ .
7. Section 4.2 # 22.
8. Let  $f(x) = \frac{(\ln x)^3}{4x}$ . Find  $f'(x)$ .
9. Section 4.2 # 34. Simplify as far as possible.
10. Section 4.2 # 48. You don't have to compare your answer to # 47.
11. Find  $f'(x)$  if  $f(x) = \ln(\ln(\ln(4x^2 + 7x + 1)))$ .