Math 155-004, Quiz 7
March 10, 2009

NAME:__________________________________________________________

Instructions: This quiz is closed books and closed notes. You may use calculators. Work that is erased or crossed out will not be graded.

1. (4 points) Find the derivatives of the following functions.
   (a) \( f(x) = x^2 \ln(x) \)

   (b) \( f(z) = \frac{z^2}{e^z} \)

2. (3 pts) Let \( p(t) = -2t^2 + 8t + 20 \) give the position (in meters) at time \( t \) (in seconds) of a rock being thrown from a tower on the planet Gigiglop.
   (a) Find the velocity of the rock (with units).

   (b) Find the acceleration of the rock (with units).

   (c) How high was the tower?

3. (3 pts). Find the first and second derivatives of the function \( f(x) = 2x^3 + 1 \) and use them to sketch a graph of the function.

Extra Credit: Whereas most neurons are thought to ______________________ incoming signals together to come up with the appropriate neural response, the owl’s auditory map neurons appear to ______________.