Math 1030 Quiz #3 (July 22, 2009) **Name:** _____

Formulas for free: $f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$ $\frac{\mathrm{d}}{\mathrm{dx}} \left[\frac{f(x)}{g(x)} \right] = \frac{f'(x)g(x) - f(x)g'(x)}{(g(x))^2}$

1. Use the limit definition of the derivative to find $f'(x)$ if $f(x) = 2x^2 - 5x + 1$.
   [You use should the rules we learned to double check your answer.]

2. Given y, compute its derivative y'. Don't worry about simplifying your answers.

   (a) $y = x^3 e^x + 2x^5 + 1234$

   (b) $y = \dfrac{\ln(x)}{3x - 6}$

   (c) $y = \sqrt{x^2 + 1}$