Quiz 4, Business Calculus
Summer Session I, 2012

Name: _____

1. (3 points) Suppose the relationship between the unit price p (in dollars) and quantity demanded x of Lebron James bobbleheads is given by $p(x) = x - 2$.

   (a) Find the Revenue function $R(x)$.

   (b) Find the Profit function if $C(x) = 0.8x^2 + 13.6x - 4$. Simplify your answer by combining like terms.

   (c) Find the Marginal Profit function and compute $P'(20)$ and $P'(40)$. What do these numbers represent and what do they mean for the production of Lebron bobbleheads?

2. (2 points) Find the second derivative of the function $f(x) = x(x-3)^4$. You do not need to simplify your answer, but you must show your work.

3. (5 points) Let $f(x) = \frac{1}{3}x^3 + \frac{5}{2}x^2 - 14x$.

(a) Use differentials to estimate the change in f from $x = 0$ to $x = 0.1$.

(b) Find the x-values for all maximums and minimums of f, if any exist. Specify which are maximums and which are minimums.