Math 1710 Section 3
February 27, 2008
Quiz #3

Name:
You **must** show your work to receive full credit.

1. Suppose that a spherical water balloon is being filled with water at a rate of 4 cubic inches per second. Given that the volume of a sphere with radius r is given by $V = \frac{4}{3}\pi r^3$, how fast is the radius increasing when the diameter of the water balloon is 6 inches?

2. Using the First Derivative Test, find all the local extrema of $f(x) = x^4 + 4x^3$. State the x-values that they occur at and whether they are local maxima or local minima.