Math 221E **Lost Quiz** **Thanksgiving 2009**

Instructions: **Name** _____

There are no more quizzes, but this is what the last one would have been like if there had been time for one and if you had more time to do a quiz; the algebra is a bit harder than the usual. This quiz will appear (with deleted lectures) on the Blu-Ray home version of the course. I will post the solutions after Thanksgiving.

In problems 1 and 2, R is the region bounded by the line $y = 3x$ and the parabola $y = x^2$.

1. Find the volume of the solid obtained by rotating the region R around the y-axis.

2. Find the volume of the solid obtained by rotating region R around the line $y = -2$. (Hint: this line is parallel to, but two units below, the x-axis.)

3. Let $f(x) = 3x^2 - 2x$. Find c, $1 \leq c \leq 4$, so that the average value of f on the interval $[1, 4]$ is equal to $f(c)$.

4. Determine the length of the curve $y = \frac{2}{3}x^{3/2}$ between $x = 0$ and $x = 2$.