Math 1030 Workshop #6 (June 18, 2009) **Name:** _____

DUE: Wednesday, June 23rd Please turn in a paper copy and **SHOW YOUR WORK!**

1. We are selling an item and have found that point elasticity is $\varepsilon = 1.25$ when selling a particular quantity at a particular price. Suppose that this quantity is decreased by 6%.

   Then the price INCREASES / DECREASES by _____ % (percent)

   and revenue INCREASES / DECREASES by _____ % (percent).

   Show your work:

2. Stan wants to find how much kerosene is left in his tank. His tank is 5 feet long and the end of his tank is elliptically shaped. This shape is described by the formula: $\frac{x^2}{2^2} + \frac{y^2}{1^2} = 1$. If Stan lowers his dipstick (in the middle of the tank) and it shows that kerosene is half a foot deep. About how much kerosene (in cubic feet) is left? Use Simpson's Rule with $n = 6$. Then convert your answer to gallons (use Alpha).

   Show your work:

3. The size of houses in Nowheresville, NC are normally distributed with a mean of 1500 square feet and a standard deviation of 250 square feet.

   (a) What is the probability a randomly chosen house in Nowheresville is between 1000 and 1200 square feet in size?

   $$\int_{\square}^{\square} n(x)\,dx = \_\_\_\_\_$$

   (b) If Nowheresville has 500 homes, how many of them are bigger than 2000 square feet?

   There are _____ houses bigger than 2000 square feet in size. The following integral helped me find my answer:

   $$\int_{\square}^{\square} n(x)\,dx = \_\_\_\_\_$$

   (c) What range (in square feet) will capture the middle 35% of houses in Nowheresville?

   35% of houses in Nowheresville have sizes from _____ square feet to _____ square feet. [Your answer should be centered around the mean of 1500 square feet.]

   Show your work: