Math 1030 Workshop #6 **Name:** _____

DUE: Wednesday, August 3rd Please turn in a paper copy and **SHOW YOUR WORK!**

1. Our hardware store is selling TorqueMaster 3000 lawn mowers. We have collected the following sales data:

Mowers Sold	8	14	19	24
Price	\$225	\$175	\$145	\$110

   (a) Compute elasticity (round to 3 decimals places):

Mowers Sold	8	14	19	24
Price	\$225	\$175	\$145	\$110
Elasticity				××× ×××

   (b) Model this demand price (in Excel) and find the logrithmic trendline.

   $p_d(q) =$ _____

   According to this model, we will sell _____ mowers if we set our price at \$90.

   When $p_d(q) = \$90$, our point elasticity is $\varepsilon =$ _____ (round to 3 decimal places).

   Circle the correct answer: We are currently charging \$90 for a lawn mower and want to **increase** revenue, we should raise / lower our price.

2. Local radio station WXYZ is getting ready for a contest where listeners will swim in a pool filled with Jello. The station manager has decided to host the contest in his own backyard and has measured the depth of his swimming pool at various points (measurements are in feet):

Distance from the end of the pool	0	2	4	6	8	10	12	14	16	18	20
Depth of the pool	3.5	3.5	3.75	3.75	4	4.5	5.5	6	6	5.75	5

   Suppose that cross-sections of the manager's pool have constant depth and his pool is 15 feet wide. Help the manager determine the volume of Jello needed to fill the pool. Use the Simpson's rule Excel spreadsheet to determine the volume of the manager's pool (in cubic feet). Then convert your answer to gallons (use ALPHA).

   The manager's pool will hold approximately _____ cubic feet of Jello.

   This is approximately _____ gallons of Jello.

3. Flash-in-the-Pan Rock Inc. has released a new album by The Stench. They collected sales data and found that this album 3 months after its release it was selling at a rate of 10,000 albums a year. By the time the album has been out 6 months its sales rate went up to 20,000 albums a year. Assuming this data fits a curve of the form $S(t) = at^2e^{bt^2}$, use the sales data to solve for a and b.

   $S(t) =$ _____

   The total number of albums sold (according to our model) is _____.

   After _____ years and _____ months only 1 album will remain to be sold.

   Alpha Commands used / integrals computed:

4. After surveying the student body, we have found that the average height of an AppState dorm student is 70 inches. In addition we have found that these heights have a standard deviation of 5. Assume heights are normally distributed.

   What percentage of the student body is between 5 and 6 feet tall? _____.

   We wish to construct a beds which accomodate all but the tallest 2% of students, how long should we make our beds?

   _____ inches.

   Alpha Commands used / integrals computed: