MAT150 – Bohart Name _____
Spring 2009

Section 3.3

1. Bottled Water Consumption

Years since 1980	Bottled Water Consumption (gallons per person per year)
0	2.4
5	4.5
10	8.0
15	11.6
19	18.1

   a. Determine an exponential regression model for this data set. Round coefficients to four decimal places. Clearly indicate what each variable represents.

   b. Determine a linear regression model for this data set. Round coefficients to four decimal places. Clearly indicate what each variable represents.

   c. Give the rate of change of the linear model and the percentage change of the exponential model. Explain the meaning of each.

   d. Graph the equations for these models on a scatterplot of the data. Which model do you think better describes the per capita water consumption?

e. According the linear model, when will the per capita water consumption exceed 20 gallons per person per year?

f. According the exponential model, when will the per capita water consumption exceed 20 gallons per person per year?

g. Use the linear model to estimate the bottled water consumption in 2009.

h. Use the exponential model to estimate the bottled water consumption in 2009

Common Errors:

DIM MISMATCH – Check your lists. They may be blank (your calculator cannot plot data that is not there), or one list is longer than the other. Go to STAT PLOT to make sure your are plotting the correct lists.

DOMAIN ERROR – One of your input values is not in the domain of the selected function. (this may happen when doing logarithmic regression)

OVERFLOW – Output values are too large, realign your data so that the input values are smaller. For example, 1995 → 95 or 5

SYNTAX – Check your previous entry. You may have typed in a negative sign instead of minus sign, or vice versa

WINDOW RANGE – Check your window settings. You may have an xmin that is larger than the xmax.