Elementary Statistics: Homework 10

Due Sunday, May 3rd 2009 before midnight (My office: 241 Tome)

Problems

Chapter 13:

Page 821: 13.1, 13.2.

Page 858: 13.13, 13.15, 13.18.

Also do the following problem:

A gemologist is interested in determining the relationship that exists between the size of a diamond (carats) and the prices. The following data represents the weight and price of D color, VS 1 clarity, round-cut diamonds.

Carats	Price
0.66	$ 3282
0.75	$ 3950
0.70	$ 3543
0.71	$ 3788
0.77	$ 4108
0.80	$ 4378
0.90	$ 5682
0.91	$ 6426
1.18	$ 9362

Summary Statistics:

Carats: mean = 0.82, standard deviation = 0.1597.
Price: mean = 4946.556, standard deviation = 1947.0588.
Correlation coefficient: $r = 0.9917$.

We are interested in using the weight(carats) of the diamond to predict the price.

a) Compute the least squares regression line using the descriptive variable names (use 4 decimal places of accuracy).
b) Using the least squares regression line, estimate the price of a diamond that weights 0.72 carats.
c) Interpret the slope in the context of the problem.
d) Compute the residual for a diamond that weighs 0.91 carats.