

STP 226 Group work Ch4

If you try to rent an apartment or buy a house, you will find that real estate representatives establish apartment rents and house prices on the basis of the square footage of the heated floor space. The following data give the square footage (in 100-s square feet) and sale prices (in \$1000) of 12 houses randomly selected from those sold in a small city.

X=sq. feet (100ft ²)	14.6	21.08	17.43	15.00	18.64	23.91	19.77	16.1	15.3	17.59	18.21	22.16
Y=price (\$1000)	59.7	79.3	71.4	61.1	64.4	85.9	75.4	67.0	62.4	68.2	74.3	81.7

1. Make a **scatter plot** of your data on your calculator. Describe the form of the relationship. Is there a linear pattern? Do you see any unusual observations (**outliers**)? Explain what is an **influential observation**.
2. a) Fit the **least squares regression line** to your data. You may use your calculator. Give the equation of your line.

b) Explain what is the criterion satisfied by the Least Squares Regression Line.

c) Explain what the **slope** of your equation tells you about the change in y with respect to the change in x. Give units of the slope.
3. a) Use your equation to **predict** the price of a 1500 ft² house . Compute the error you made by using the equation. Did you overestimate or underestimate by using your equation?

b) Use your equation to **predict** the price of a 5500 ft² house. Clearly explain why this may not be a reasonable prediction
4. a) Compute **correlation coefficient r** (use calculator). Explain what r tells you about the strength of linear relationship between x and y.

b) Determine the **% of variation** in y that is explained by the regression line? Does it mean that the regression line fits well? Explain.