

Instructions: You must show all work to receive full credit for the problems below. You may use Excel where appropriate. Any datasets needed will be posted on Canvas with the quiz file, and you should submit such work along with your quiz. Round answers to two decimal places unless other instructions are given in the problem. Do not say “see Excel”. Paste your answers into the quiz.

1. Use the sequence of values 6.5, 7.8, 9.1, 10.4, 11.7, 13, 14.3, ... to determine if the sequence is a linear relationship or another kind. If linear, what is the slope (common difference)?

This is a linear relationship. The common difference is 1.3.

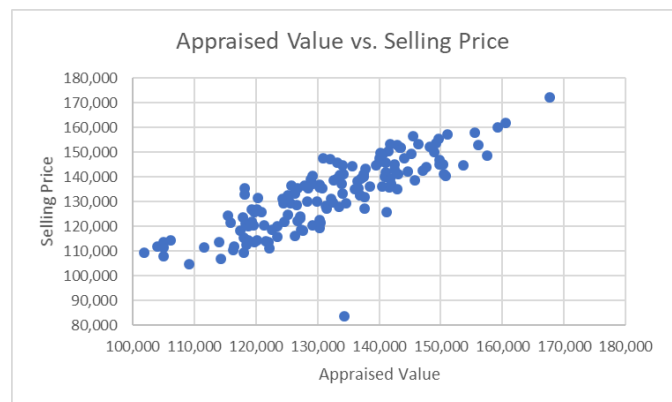
2. The linear equation $y = 0.017x - 0.0848$ models the relationship between the price of gold x and the price of silver y . Interpret the slope in the context of the problem. The intercept cannot be interpreted. Explain why not.

For every unit increase (dollars) in the price of gold, we can expect the price of silver to increase, on average, by 1.7 cents.

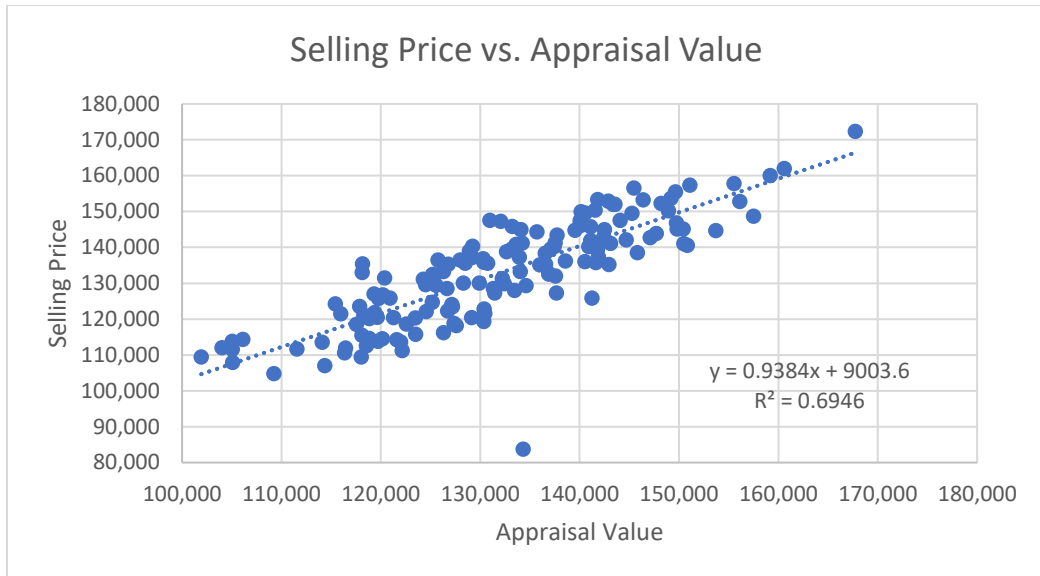
The intercept cannot be interpreted since dollars can't be negative (as a selling price).

3. A scatterplot is shown. Does there appear to be a strong relationship between the variables? If so, is the relationship linear or nonlinear?

There is one outlier, but otherwise this is a strong linear relationship.



4. Use the data in the Excel file **154quiz10data.xlsx** to construct a scatterplot that predicts selling price from appraisal value. Be sure to label the graph appropriately. Find the linear regression equation, correlation value (r) and coefficient of determination (R^2). Use this information to answer the questions that follow.



a. Write your regression equation.

$y = 0.9384x + 9003.6$

b. Interpret the slope of the equation in context.

For every dollar increase in appraisal value, the selling price increases by about 94 cents.

c. If possible, interpret the y-intercept. If it cannot be interpreted in context, explain why not.

If the appraisal value is 0, the selling price will be around \$9003.60.

d. What is the correlation? Is this a strong, moderate or weak correlation? Is it positive or negative?

**0.833406
Strong and positive.**

e. What is the R^2 value?

$R^2 = 0.6946$

f. Interpret the coefficient of determination in the context of the problem.

Around 69% of the variability in selling price can be accounted for by the appraisal value.

g. Use the equation to predict the selling price of a house appraised for \$180,000 if the trend continues.

177,915.60