**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_ Score:\_\_\_\_\_**

**U7 HWK #2** *Trend Line and Prediction Function*

**Directions:** In #1 and 2, observe the data sets and take note of any associations you see, draw a line of best fit, write a prediction function, and use your function to predict the value of *y* when *x* = 12 and when *x* = 100.

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| --- | --- |
| 1. 1. Observations:    2. Using a ruler, draw a trend line through the data points that captures the general trend of the data.    3. Estimate the slope and *y-*intercept of your line.   *m* \_\_\_\_\_\_\_ *b* \_\_\_\_\_\_\_   * 1. Write a prediction function for the data set.   2. Use your prediction function to find the value of *y* when *x* = 12 and when *x* = 100. | 1. 1. Observations:    2. Using a ruler, draw a trend line through the data points that captures the general trend of the data.    3. Estimate the slope and *y-*intercept of your line.   *m* \_\_\_\_\_\_\_ *b* \_\_\_\_\_\_\_   * 1. Write a prediction function for the data set.   2. Use your prediction function to find the value of *y* when *x* = 12 and when *x* = 100. |

1. The table gives data relating the number of oil changes every two years to the cost of car repairs.
   * + - 1. Plot the data on the graph provided, with the number of oil changes on the horizontal axis.

You will need to define your own scale, make it appropriate to the data. Label the axes and give a title.

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| Oil Changes | 3 | 5 | 2 | 3 | 1 | 4 | 6 | 4 | 3 | 2 | 0 | 10 | 7 |
| Repair Costs | $300 | $300 | $500 | $400 | $700 | $400 | $100 | $250 | $450 | $650 | $600 | $0 | $150 |



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* + - * 1. Write a sentence describing the association between the number of oil changes and the cost of car repairs. Is the association weak or strong?
        2. Are there any outliers or clusters that affect the data?
        3. Draw a trend line for the data. Assess how well the line fits the data and give a justification for your thoughts.
        4. What is the slope of the line of best fit and what does it represent?
        5. What is the y-intercept of the line and what does it represent?
        6. Write a prediction function in slope-intercept form that you could use to predict the cost of repairs, y, for any number of oil changes, x.
        7. Use your prediction function to predict how much a person would spend on car repairs if they were to get 8 oil changes.
        8. If a person spent $1,000 dollars on car repairs how many oil changes would you expect them to have? How did you determine your answer?
        9. Based off of this data what would you recommend as the ideal number of oil changes to get every two years. Justify your answer with specific information from the table, scatterplot, and trend line. Answer in complete sentences.