MTH1W – Unit 9: Statistics

Lesson #9.5: Using Statistics with Spreadsheets

Date: _____

Learning Goal: We are learning to use spreadsheets to create scatter plots.

Since you are already on a computer, you will learn this lesson by researching and trying things on your own. The main thing that we will do is learn how to make a scatter plot and line of best fit. But before we do that, we need to understand whether our line of best fit is truly a good fit. Look up the following:

1. Using your own words, explain what correlation is.

1. Using your own words, explain what correlation is. CORRELATION is a RELATIONSHIP between	two variak two variab	les (r	epresent differs	ing two & guard	ites)
So, as one quantity charges, the other It is a positive correlation when an increase in leg time and distance of a car with unifor It is a negative correlation when an increase is	n also charge one results m speed. one results	en. in an	increase	of the	other. ther.
2. What is the correlation coefficient? If for a fixed distance It is a measure of strugth	ce, the increase decrea	re in spi re the	time tak		
and the nature of the relationship between the two quantities. CORFLATION COEFFICIENT = POSITIVE	VALUE OF CORFERATION COEFFICIENT	0-0.1	0.1-0.5	0.2-0.8	0.8 -)
NEGATIVE CORRELATION COEFFICIENT => RELATIONSHIP RELATIONSHIP	STRENGTH	NO Correca- Tigod	WEAK	MODERATE	STRONG

3. Draw the three sketches of a scatter plot that is strong positive, random (no correlation), and perfect negative.





RANDOM

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PERFECT NEGATIVE

Alright, time to learn about scatter plots in Excel! Start a new document and put this information into Excel:

В	С	D
Month	Advertising	Items sold
Jan	\$45	15
Feb	\$55	25
Mar	\$47	17
Apr	\$75	34
May	\$90	41
Jun	\$100	47
Jul	\$100	50
Aug	\$95	46
Sep	\$88	37
Oct	\$50	22
Nov	\$45	20
Dec	\$58	30

1. Highlight the Advertising cell all the way to the bottom of last row (the 30).

2. Click insert – then the scatter plot button. / 🛄 Choose the first option.

3. You should be in "Chart Design". Click on "Add Chart Element" (first button in the row" and select "axis titles" – "Primary Horizontal". Double click the new text box on the x-axis and change it to "Advertising Dollars Spent". Do the same steps, but select "Primary Vertical". Edit the text box to be "Items Sold". Edit the Chart Title to be "Advertising Spend vs Items Sold".

4. Click on a data point (on the scatter plot), right click, the select "Add Trendline". This is the line of best fit. A Format Trendline will appear. Scroll down and click on "Display Equation on Chart". Click on the equation and move it to on open spot to the right of the title.

5. Click on the x-axis numbers. On the right, you will get new options. Click the bar graph button, then "Axis Options". Change the minimum bound to 40.

You are done the scatter plot!! You can edit the colours, grid style, and size if you wish.

6. The last thing is to now see whether Advertising does cause you to sell more items. To calculate the correlation of this data, go two spaces under the "advertising" and type "Correlation". In the cell next to that, type:

=correl(advertising column, items sold column)

This should give you the correlation coefficient. Under the number, write what that number means (from your research earlier!).

Save and submit to Edsby.