

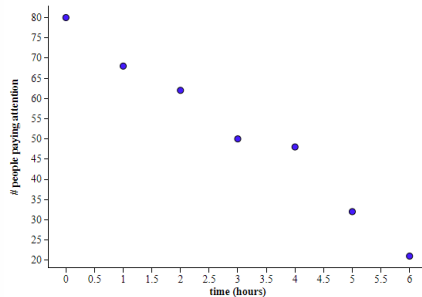
Name: _____ Hour: _____ Date: _____

Chapter 3 Review Sheet

In my meeting yesterday, I noticed that the number of people paying attention to the training was declining throughout the day. I collected the following data:

Time (hours)	0	1	2	3	4	5	6
# people paying attention	80	68	62	50	48	32	21

1. Make a scatterplot of the data on your calculator and sketch it below.



2. Describe the data

The scatter plot shows a strong negative linear correlation with no outliers. (DUFS)

3. Find the line of best fit using the equations for a and b. Confirm that it matched with the calculator's line of best fit.

$$\hat{y} = 79.75 - 9.3929x$$

4. Make a prediction for the # of people paying attention at $t = 2.5$ hours.

$$\hat{y} = 79.75 - 9.3929(2.5) = 56.27$$

5. What is r ? Interpret.

The correlation $r = -0.99$, which means the correlation is negative and extremely strong.

6. What is r^2 ? Interpret.

The coefficient of determination $r^2=0.98$, which means about 98% of the variability in the # of people paying attention is accounted for by the LSRL.

7. What is the slope of the LSRL? Interpret in the context of the problem.

The slope $m = -9.3929$, which means with each additional hour the predicted # of people paying attention decreases by 9.3929.

8. What is the y-intercept of the LSRL? Interpret in the context of the problem.

The y-intercept $b=79.75$, when hours=0 the predicted # of people paying attention is 79.75 people.

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9. Identify the values a and b in the Minitab output:

Predictor	Coef ^{y int}	SE Coeff	T	P
Constant	79.75	5.34	3.41	0
Time	-9.393	4.23	-15.81	0

S = 3.143 R-Sq = 98.0% R-Sq (adj) = 97.2%

10. Interpret s = 3.143 in the context of the problem.

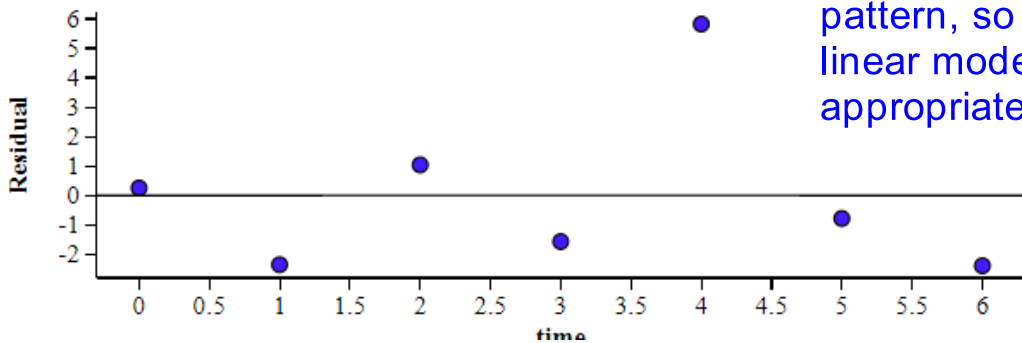
The actual # of people paying attention is about 3.143 away from the # of people paying attention predicted by the LSRL.

11. Find the residual for a time of 4 hours.

$$\hat{y} = 79.75 - 9.3929(4) = 42.1784$$

$$R = A - P = 48 - 42.1784 = 5.8216$$

12. Make a residual plot on your calculator. Sketch it below.



It has a scattered pattern, so the linear model is appropriate.

13. Mr. Bakri walked into the meeting at t = 7 hours and all of a sudden 82 people were paying attention. Would this point be influential? Prove it.

This would be an outlier that is located above the LSRL to the right. It is not in line with the other data points and weakens the correlation to r=-0.418

