Name:_____ Date:_____

**Practice: Linear regression and line of best fit**

Students in Dr. Oldham's Algebra I class wanted to see if there is a correlation between test scores and time spent watching television. The students created a table in which they recorded 13 student's average number of hours per week spent watching television and scores on a test. Below is the data for each student

TV hrs/week (average)	30	12	30	20	10	20	15	12	15	11	16	20	19
Test Scores	60	80	65	85	100	78	75	95	75	90	90	80	75

1) Find the best fitting linear model that represents the data and the correlation coefficient.

2) Why is the correlation coefficient negative?

3) Identify the y-intercept. What does it represent in the context of the problem?
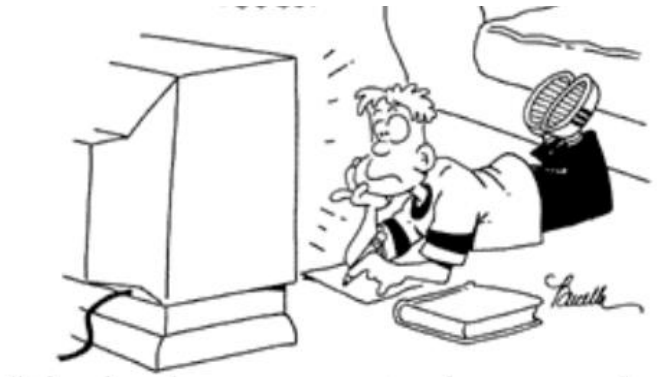
4) Using this model, what is the estimated test score of a student who watches TV for 35 hours?

5) Using this model, what is the highest number of hours a student can watch TV and still pass the test (make a 70)?

6) Is the relationship between television watched and test scores a causation or a correlation and why?

FLIP TO BACK!

The data below represents the life expectancy of the population of a certain country from 1900 to 1960, based on years of birth.

Let the year 1900 be x = 0, and let x represent the number of decades since 1900.

Year	1900	1910	1920	1930	1940	1950	1960
Life exp.	49	41	56	59	63	68	70

7. Use a calculator to find the following: (round to the nearest hundredths).

a =_____   b = _____   r = _____

8. What is the best fitting line for the data?

9. Based on the data, what is the life expectancy for someone born in **2000**?

10. What does 0.44 represent in this situation?

To the right is a table which shows the annual cost of raising a child based on how old they are. Find a line of best fit to predict how much raising a :
a)14 year would cost

Cost of Raising a Child Born in 2003					
Child's Age	3	6	9	12	15
Annual Cost ($)	10,700	11,700	12,600	15,000	16,700

b)18 year old cost

c) What does 510 represent in this situation?

d) What does 8,750 represent in this situation?