1. Explain the difference between a trend line and a line of best fit.

2. The table shows number of hours spent studying for a science test and final test score.

Study Hours	3	2	5	1	0	4	3
Grade	84	77	92	70	60	90	75

a. Draw a scatter plot of the data and a line of fit (trend line).

b. Write a **linear function** for the line of BEST fit and interpret
The correlation coefficient. Is the line a good fit? Explain.

c. Predict the grade of a student who studied 6 hours.
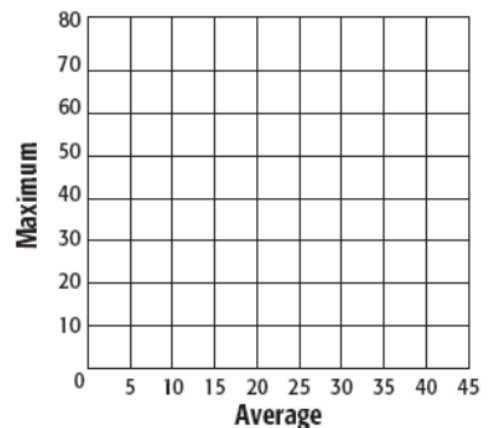
d. Is this interpolation or extrapolation?
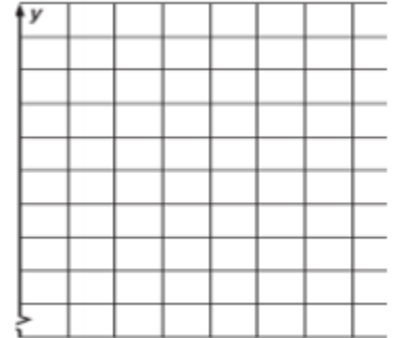
3. The table shows the average and maximum longevity of various animals in captivity.

Longevity (years)								
Avg.	12	25	15	8	35	40	41	20
Max.	47	50	40	20	70	77	61	54

a. Draw a scatter plot and determine what relationship, if any, exists in the data.

Animal Longevity (Years)

b. Draw a line of fit (trend line) for the scatterplot,
then use your calculator to write the linear function
of the line of BEST fit and interpret the correlation
coefficient.

c. Is the line a good fit? Explain.

d. Predict the maximum longevity for an animal with an average longevity of 33 years.

e. Is this interpolation or extrapolation?

4. A herd of caribou moved to a small remote island where they had no predators. Data on the population of the herd was collected for 6 years.

Time (years)	0	1	2	3	4	5	6
Population	24	35	51	74	104	151	225

a. Write the equation for the **line** of best fit.   b. r = _____
   (linear regression)

c. Write the equation for the **curve** of best fit.   d. r^2 = _____
   (exponential regression)

e. Is the linear or exponential regression a better fit for the data?   Linear   Exponential

f. Using the equation that best fits the data, predict how many caribou there will be in 9 years.

g. Is this interpolation or extrapolation?

5. Use the data in the table to answer the questions.

x	1	1	2	5	4	4	3	6
y	9	3	8	4	3	2	6	8

a. Write the equation for the **line** of best fit.   b. r = _____
   (linear regression)

c. Write the equation for the **curve** of best fit.   d. r^2 = _____
   (exponential regression)

e. Is the linear or exponential regression a better fit for the data?   Linear   Exponential

f. Using the equation that best fits the data, predict y when x is 3.

g. Is this interpolation or extrapolation?