9B Shake It All About   Name _____ Per: _____
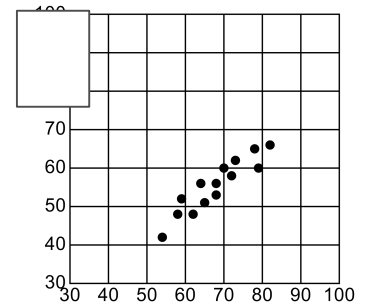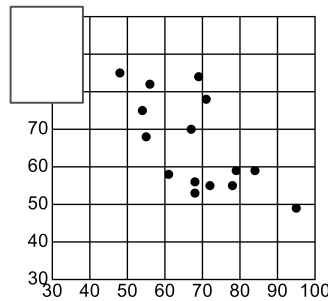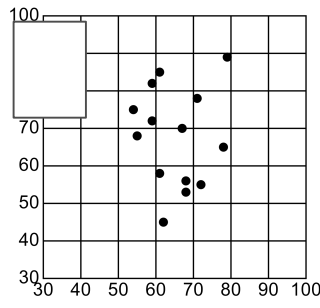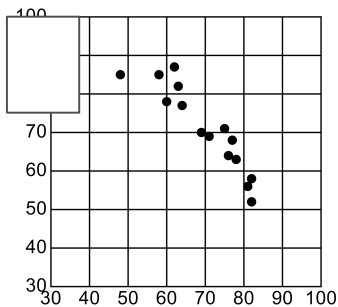SHOW ALL YOUR WORK IN PENCIL

A GRAPHING CALCULATOR IS REQUIRED FOR SOME OF THIS HOMEWORK

1. If the r value (correlation coefficient) equals 1, what does that tell you about the relationship between the points?_____

2. If the r value (correlation coefficient) equals 0, what does that tell you about the relationship between the points?_____

3. Match the description of the correlation and Correlation Coefficient "r" that corresponds with the graph.

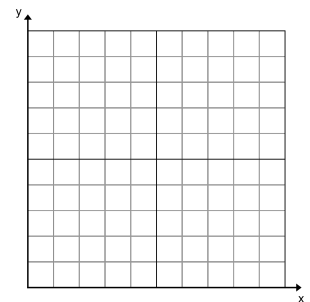   A. $r = 0.15$ (*Weak Correlation*)   C. $r = -0.94$ (*Strong Negative*)

    B. $r = 0.97$ (*Strong Positive*)   D. $r = -0.49$ (*Moderate Negative*)

4. Explain when the value of the correlation coefficient (r-value) would be positive? _____

5. Name two related things that would have a positive correlation coefficient. State whether it would be strong, moderate or weak._____

6. Explain when the value of the correlation coefficient would be negative? _____

7. Name two related things that would have a negative correlation coefficient. State whether it would be strong, moderate or weak._____

8. A keyboarding instructor at a community college collected data relating a student's age to typing speed. The equation for the trend line is $f(x) = -1.4x + 117.8$
   a. What would x represent? _____
   b. What would $f(x)$ represent?_____
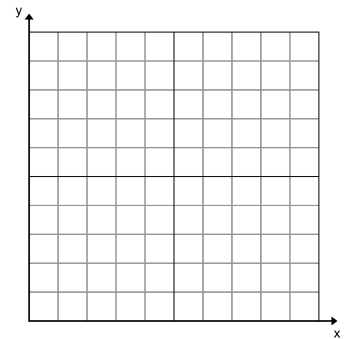   c. If you were 25 years of age, what would you estimate your typing speed to be? _____

9. Label the grid and plot the data points to the right:
   a. Does the English and History scores have a positive or negative correlation? _____
   b. Weak or strong correlation? _____
   c. Using technology, find the line of regression. _____
   d. What is the correlation coefficient (r-value)?_____
   e. Explain how you entered the data into your calculator.

English Score	History Score
60	65
53	59
44	57
61	61
70	67

10. Plot the following data points. (For the following, refer to your study guide for calculator instructions.)

x	2	2.3	3.3	3.7	4.6	4.5	4.2	5
y	4.4	4.01	2.71	2.19	1.02	1.15	1.54	0.5

a. Find the equation for the line of regression _____

b. What is the correlation coefficient (r-value)?_____

c. Describe the correlation (be specific). _____

11. The table shows sales for DVD's for the last 5 years.

a. Graph the data on the scatter plot
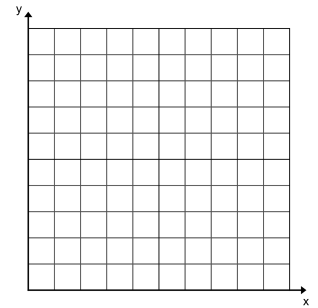
b. Draw a trend line for the data.

c. **Using technology**, write the equation for the line of regression. _____

d. Find the correlation coefficient (r-value) _____

e. Describe the correlation (be specific using words). _____

Year	Sales (in thousands)
1	$425
2	$390
3	$360
4	$345
5	$300

f. Describe a possible reason for the correlation coefficient?_____

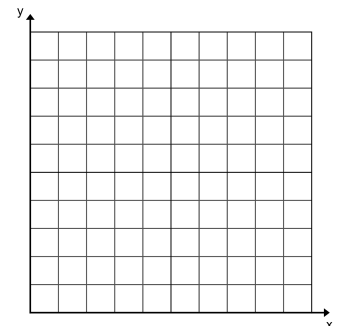g. Using the equation, after how many years when would the sales reach $0? _____

12. The table below shows how much water Liz drinks and the average temperature for the day.

a. Graph the data on the scatter plot

b. **Using technology**, write the line of regression._____

c. Find the correlation coefficient or (r-value)?_____

d. Describe the correlation (be specific)

_____

e. Using your equation, if it is only 80°, how much water would Liz drink? _____

Temp (F°)	(oz) Water consumed/ day
99	48
85	27
97	48
80	16
92	32
88	34
94	40
83	20

13. Using the following data: **30, 42, 34, 34, 45, 23, 42, 36, 34, 32, 40, 27, 33**

a. Mean: _____

b. Mode: _____

c. Range: _____

d. Min: _____

e. Q1: _____

f. Median: _____

g. Q3: _____

h. Max: _____

i. IQR (Inter-Quartile Range):____

j. Box Plot

k. Dot Plot

l. Histogram (use equal intervals of 25-29, 30-34, 35-39, 40-45)