12.2H Let's Be Reasonable Name _____Per: _____

SHOW YOUR WORK AND WORK IN PENCIL.

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

   _____

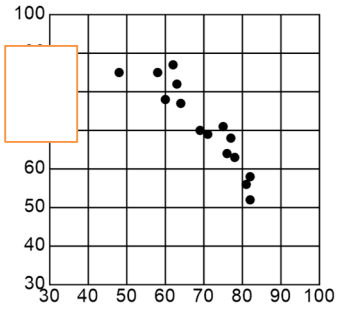
2. If the r value equals 0, what does that tell you about the relationship between the points? _____

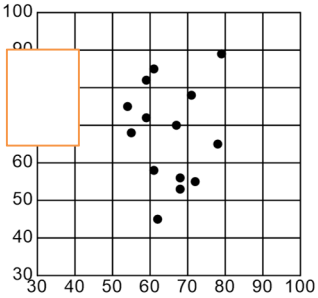
   _____

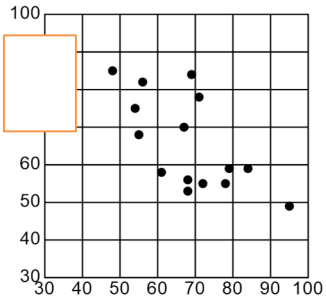
3. Match the description of the correlation and Correlation Coefficient "r" that corresponds with the graph.

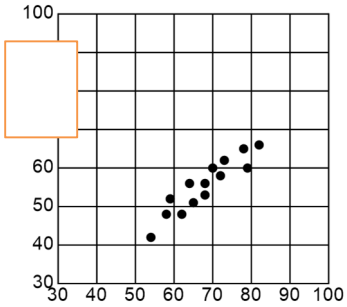
   A. $r = 0.15$ C. $r = -0.94$

   B. $r = 0.97$ D. $r = -0.49$









4. Explain how you know a correlation coefficient is positive or negative? _____

   _____

5. Describe how you know whether a correlation coefficient is strong, moderate or weak._____

   _____

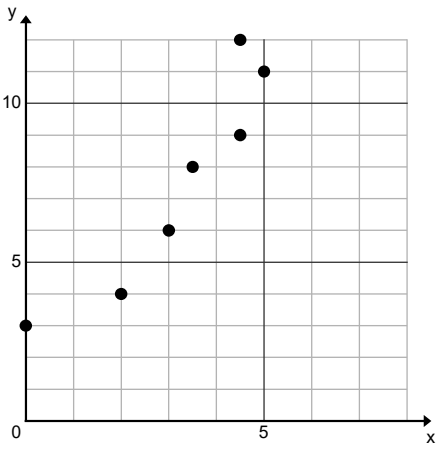
6. Draw a trend line you think best fits the scatter plot.

   a. Is there a strong or weak association/correlation? _____

   b. Is the correlation coefficient positive or negative? _____

   c. Use two data points on your line to find the equation for the trend line. Equation:_____

   d. Enter the data points from the graph into the calculator to find the equation for the line of regression. _____ Draw it.



7. Would another point at (8, 3) change the line of regression? _____ Explain:_____

8. Plot the following data points. Use calculator for part a and b.

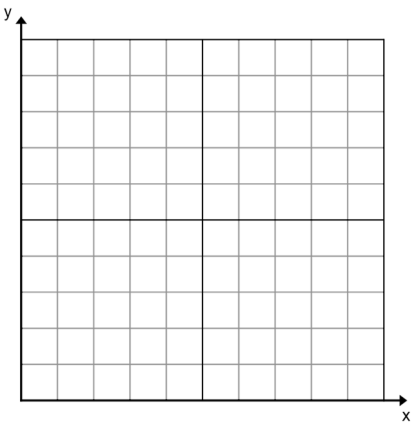
2	2.3	3.3	3.7	4.6	4.5	4.2	5
4.4	4.01	2.71	2.19	1.02	1.15	1.54	0.5

   a. Find the equation for the line of regression _____

   b. The r value _____

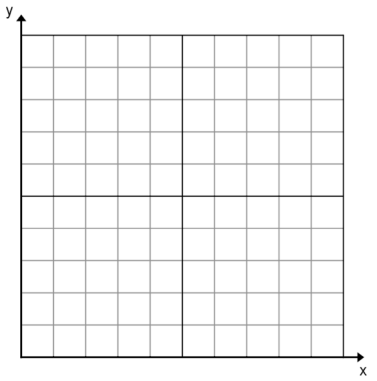
   c. Tell how you entered your data into the calculator. _____

   _____



9. Plot the data points to the right:

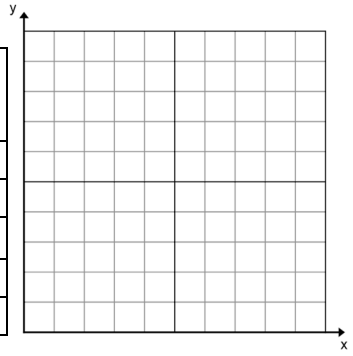
Eng Score	Hist Score
60	65
53	59
44	57
61	61
70	67



   a. Do the English and History scores have a positive or negative correlation?_____
   b. Do English scores positively affect History scores?_____ Explain:_____
      _____
   c. Weak or strong correlation? _____
   d. Explain what this would mean to someone looking at the statistics and equation: _____
      _____

10. The table to the right shows sales for DVD's for the last five years.

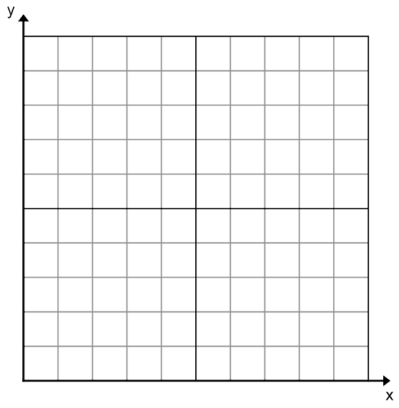
Year	Sales (in $1,000s)
1	$425
2	$390
3	$360
4	$345
5	$300



   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).
      _____
   f. Describe a possible reason for the correlation coefficient? _____
   g. **Using the equation**, after how many years when would the sales reach $0? _____ Explain: _____
      _____

11. The table to the right shows how much water Liz drinks and the average temperature for the day.

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



   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? _____

12. Find the correlation coefficient (r-value)? _____
    Describe the correlation (be specific). _____
    _____

X	1	3	2	6	7	6	5
Y	16	10	14	22	26	28	19

13. Use the points from the following table.

#	16	10	14	7	22	28	19
Std. Dev.							

   a. Find the mean:_____
   b. Find the standard deviation: _____
   c. Find the deviation or **distance** from the mean for <u>each</u> piece of data and write it in the table.

Extra Credit: Find the Mean Square Deviation (or Variance).