Name _____ **Date** _____

Elementary Statistics **HW 10.2 part 1**

1. For each of several randomly selected years, the sunspot number and the high value of the Dow Jones Industrial Average are recorded.
   - ➔ The sunspot number is a measure of sunspot activity on the sun.
   - ➔ The Dow Jones Industrial Average is one measure of stock market value.

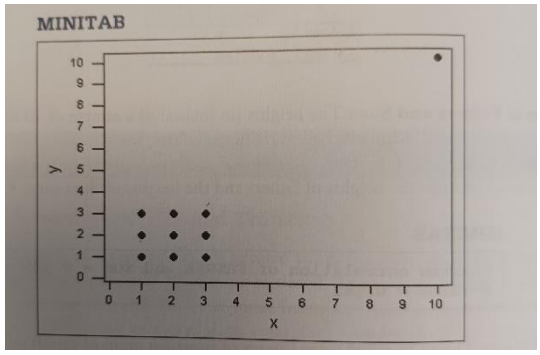
   a. For this sample of paired data, what does r represent?

   b. What does ρ represent?

   c. Without doing any research or calculations, estimate the value of r.

2. A physics experiment consists of recording paired data consisting of the time (in seconds) that has elapsed since the beginning of the experiment and the distance (in cm) of a robot from its point of origin. Using the paired time/distance data, the value of r is calculated to be 0. Is it correct to conclude that there is no relationship between time and distance? Explain.

3. Use the following graph to answer questions a-d:



a. Examine the pattern of all 10 points and subjectively determine whether there appears to be a correlation between x and y.

b. After identifying the pairs of coordinates corresponding to the 10 points, find the value of the correlation coefficient r and determine whether there is a linear correlation.

c. Now remove the point with coordinates (10,10) and repeat parts a and b.

d. What do you conclude about the possible effect from a single pair of values?

4. a. Use the given data to construct a scatterplot:

X	10	8	13	9	11	14	6	4	12	7	5
y	9.14	8.14	8.74	8.77	9.26	8.10	6.13	3.10	9.13	7.26	4.74

b. Find the value of the linear correlation coefficient r.

c. Determine if there is sufficient evidence to support the claim of a linear correlation between the two variables.

d. Identify the feature of the data that would be missed if we found r without constructing the scatterplot.

5. a. Use the given data to construct a scatterplot:

X	10	8	13	9	11	14	6	4	12	7	5
y	7.46	6.77	12.74	7.11	7.81	8.84	6.08	5.39	8.15	6.42	5.73

b. Find the value of the linear correlation coefficient r.

c. Determine if there is sufficient evidence to support the claim of a linear correlation between the two variables.

d. Identify the feature of the data that would be missed if we found r without constructing the scatterplot.