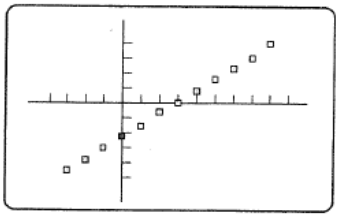
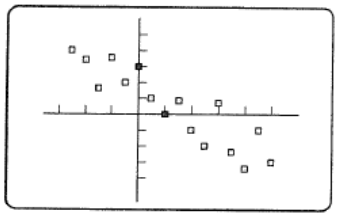
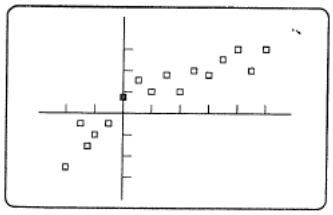
Statistics
A2RCC U11D4 Homework

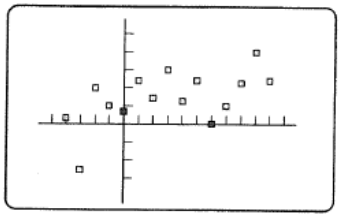
Name _____

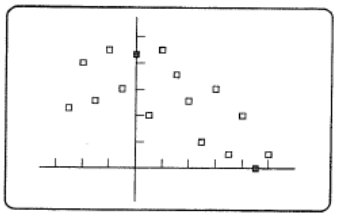
1) Match the scatter plot with the appropriate correlation coefficient.

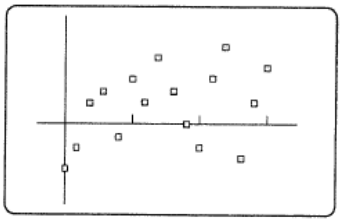
1. 

3. 

5. 

2. 

4. 

6. 

a) +1 plot# _____ b) +0.8 plot# _____ c) +0.3 plot# _____ d) 0 plot# _____ e) - 0.6 plot# _____ f) - 0.9 plot# _____

2) Which of the following correlation coefficients most clearly represents a linear relationship for a given set of data points?

a) – 0.89 b) – 0.52 c) 0.58 d) 0.76

3) Which of the following correlation coefficients would indicate no significant linear relationship for the independent and dependent variables in a data set?

a) – 1 b) – 0.52 c) 0.15 d) 0.90

4) In a mathematics class of ten students, the teacher wanted to determine how a homework grade influenced a student's performance on the subsequent test. The homework grade and subsequent test grade for each student are given in the accompanying table.

A. Give the equation of the linear regression line for this set of data, rounding to the nearest hundredth.

B. What is the correlation coefficient, to the nearest hundredth, and what does it mean about the data?

C. A new student comes to the class and earns a homework grade of 78. Based on the equation in part a, what grade would the teacher predict the student would receive on the subsequent test, to the nearest integer?

Homework Grade (x)	Test Grade (y)
94	98
95	94
92	95
87	89
82	85
80	78
75	73
65	67
50	45
20	40

5) Jean invested $380 in stocks. Over the next 5 years, the value of her investment grew, as shown in the accompanying table. Write the exponential regression equation for this set of data, rounding all values to *two decimal places*. Using this equation, find the value of her stock, to the *nearest dollar*, 10 years after her initial purchase.

Years Since Investment (x)	Value of Stock, in Dollars (y)
0	380
1	395
2	411
3	427
4	445
5	462

6) Water is running from a tank maintained by the Yorkville Fire Department. Students measured the depth of the water in 15-second intervals and recorded the results in the accompanying table.

Write the power regression equation for this set of data, rounding all values to the *nearest thousandth*. Using this equation, predict the depth of the water at 2 minutes, to the *nearest tenth* of a foot.

Time (x) (in seconds)	Depth of Water (y) (in feet)
15	11.8
30	9.9
45	8.2
60	6.3
75	5.9

7) The accompanying table shows wind speed and the corresponding wind chill factor when the air temperature is 10°F.

Wind Speed (mi/h) x	Wind Chill Factor (°F) y
4	3
5	1
12	−5
16	−7
22	−10
31	−12

Write the logarithmic regression equation for this set of data, rounding coefficients to the *nearest ten thousandth*. Using this equation, find the wind chill factor, to the *nearest degree*, when the wind speed is 50 miles per hour. Based on your equation, if the wind chill factor is 0, what is the wind speed, to the *nearest mile per hour*?