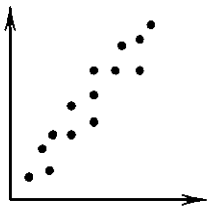
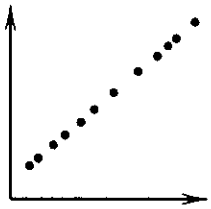
Name: _____ Date: _____

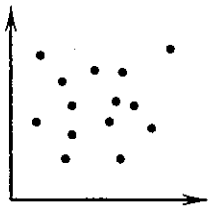
QUANTIFYING PREDICTABILITY
COMMON CORE ALGEBRA I HOMEWORK

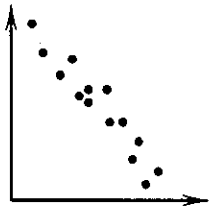
1. Below there are six scatter plots, six correlation coefficients, and six terms. Match the appropriate r-value with the scatter plot it most likely corresponds to. Then match the term you think is most appropriate to the r-value as well (not to the graph).

(a)  $r = 1.0$ Weak Negative

(b)  $r = 0.35$ Perfect Positive

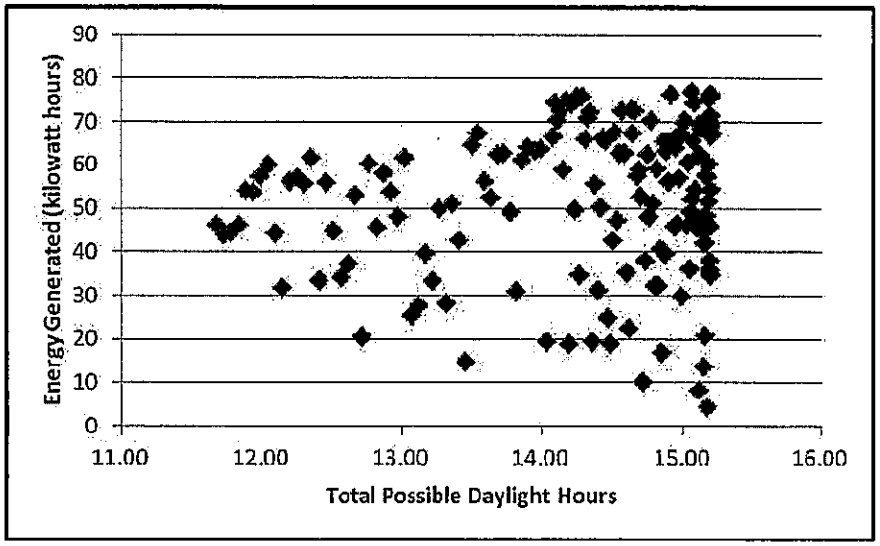
(c)  $r = -0.82$ Strong Positive

(d)  $r = 0$ Weak Positive

(e)  $r = -0.56$ Moderate Negative

(f)  $r = 0.93$ No Correlation

2. A solar power company is trying to correlate the total possible hours of daylight (simply the time from sunrise to sunset) on a given day to the production from solar panels on a residential unit. They created a scatter plot for one such unit over the span of five months. The scatter plot is shown below.



The equation line of best fit for this bivariate data set was:

$y = 2.26x + 20.01$.

(a) How many kilowatt hours would the model predict on a day that has 14 hours of possible daylight?

(b) To the nearest tenth of an hour, how many hours of possible daylight would be needed to produce 50 kilowatt hours of energy?

(c) The correlation coefficient for this regression was $r = 0.134$. Would you characterize this as strongly positive, moderately positive, or a weakly positive correlation? Explain.

(d) Based on (c), do you have confidence in the model to accurately predict the energy production based on the total possible daylight hours? Explain.

(e) What environmental factors might contribute to the "noise" in the data? Noise are factors that prevent the correlation from being perfect.