Linear 6 – Linear Scatter Plots   Name _____

6.1: Introduction to Scatter Plots   Per _____ Date _____

Instructions: For each of the following, plot the set of data points and answer the questions. Make sure to label the *x*- and *y*-axis and choose appropriate units before plotting points. The place where the axes cross does not necessarily need to represent the point (0, 0). Plotting these data points results in what is called a *scatter plot*.

1. Lexis tracks how much time she studies for tests and records the resulting percentage she earns on subsequent tests in the table below.

Study Time (Min)	Test Score (%)
60	92
55	72
10	65
75	87
120	98
90	95
15	68

a. Does this scatter plot look to be approximately linear to you?

b. Explain the relationship between study time and test score by circling one of the following.
    As Lexi's study time increases, her tests scores: increase / decrease / have no linear relationship.

c. Based on your data points, what would her approximate test score be if Lexis studied for 20 minutes? Explain how you got your answer.

d. Based on the trend, estimate how long Lexis needs to study in order to earn 80%. Explain the basis for your answer.

2. In 1912, the people of Japan sent 3,020 cherry trees to the United States as a gift of friendship. The date the trees reach full blossom (approximately 70% in bloom) varies each year depending on the weather. The table below shows various dates in April when the famous Washington, DC, cherry trees bloomed and the average winter temperature that year. Below, plot Day of the Year on the *x*-axis and Avg. Temp on the *y*-axis.

Year	Day of the Year	Avg Winter Temp in Wash. DC (°F)
1993	101	38.5
1994	95	41.1
1995	92	42.1
1996	95	40.2
1997	85	46.8
1998	86	45.2
1999	95	42.8
2000	77	47.2
2001	96	42.4
2002	92	45.3
2003	92	44.7
2004	91	43.0
2005	99	41.4
2006	89	43.5
2007	91	39.8
2008	86	45.2
2009	91	42.0
2010	90	43.2
2011	88	43.8

a. Does the scatter plot look to be approximately linear to you? Explain.

b. Explain the relationship between the day of the year the cherry blossoms bloom and the average winter temperature in Washington, DC, by circling one of the following. *As the day of the year increases, the average temperature in Washington: increases / decreases / has no linear relationship.*

c. Based on your plotted points, approximately what would be the average winter temperature in Washington, DC, in February and March if the bloom happened 87 days into the year? Explain how you arrived at your answer.

d. Based on your plotted points, approximately what day of the year would the cheery trees bloom if the average winter temperature that year was 35 degrees? Explain how you arrived at your answer.