Name _____ **Date** _____

Elementary Statistics **Period** _____

Chapter 10 Quiz Review

Sections 10.1-10.3

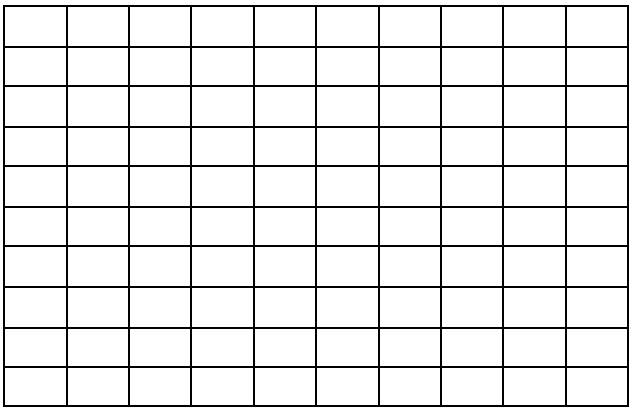
1. **True or false: If there is no linear correlation between systolic and diastolic blood pressure, then those two variables are not related in any way.**

2. **True or false: If the sample data leads us to the conclusion that there is sufficient evidence to support the claim of a linear correlation between systolic and diastolic blood pressure, then we could also conclude that a rise in systolic blood pressure causes a rise in diastolic blood pressure.**

3. **The table below lists measurements from 8 different eruptions of the Old Faithful geyser in Yellowstone National Park. Let x represent the height (in feet) of the eruption and y represent the interval-after eruption (in minutes):**

Height	140	110	125	120	140	120	125	150
Interval After	92	65	72	94	83	94	101	87

a. Construct a scatterplot of the data (by hand):



b. What does the scatterplot suggest about a linear correlation between heights of eruptions and interval-after times?

c. Find the value of the linear correlation coefficient of this sample set of data.

d. Determine whether there is sufficient evidence to support a claim of a linear correlation between heights of eruptions and interval-after times. (Be sure to follow the steps for a formal hypothesis test.

e. Find the linear regression equation.

f. Based on the given sample data, what is the best predicted interval-after time for an eruption with a height of 100 feet?

4. The table below lists measurements from 8 different eruptions of the Old Faithful geyser in Yellowstone National Park. Let x represent duration time (in seconds) and y represent interval-after time (in minutes):

Duration	240	120	178	234	235	269	255	220
Interval After	92	65	72	94	83	94	101	87

a. Determine whether there is sufficient evidence to support a claim of a linear correlation between duration and interval-after time for eruptions of the Old Faithful geyser. (Be sure to follow the steps for a formal hypothesis test)

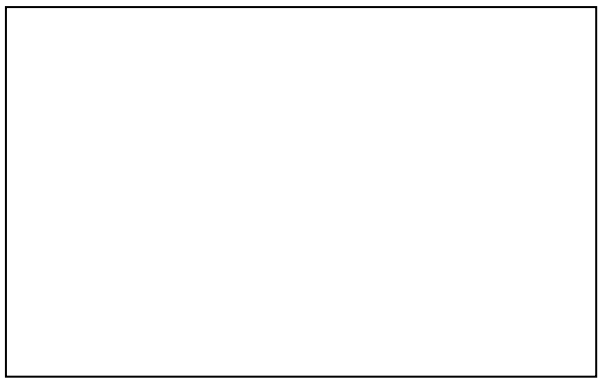
b. Find the linear regression equation.

c. If an eruption has a duration of 200 seconds, what is the best predicted value for the time interval-after eruption to the next eruption?

5. In a physics experiment at Doane College, a soccer ball was thrown upward from the bed of a moving truck. The table below lists the time (in seconds) that has lapsed from the throw and the height (in meters) of the soccer ball.

Time	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8
Height	0.0	1.7	3.1	3.9	4.5	4.7	4.6	4.1	3.3	2.1

a. Construct a scatterplot of the sample data using the graphing calculator. (Don't forget to label the window.)



b. Find the linear correlation coefficient for this sample data.

c. What do you conclude about the linear correlation between time and height of the soccer ball?