1. Below is a scatterplot of the total number of receptions and total number of receiving yards for football players in the NFL draft from 1985 to 2015. (Chapter 6/7/8)

Bivariate Fit of Receiving Yards By No. of Receptions
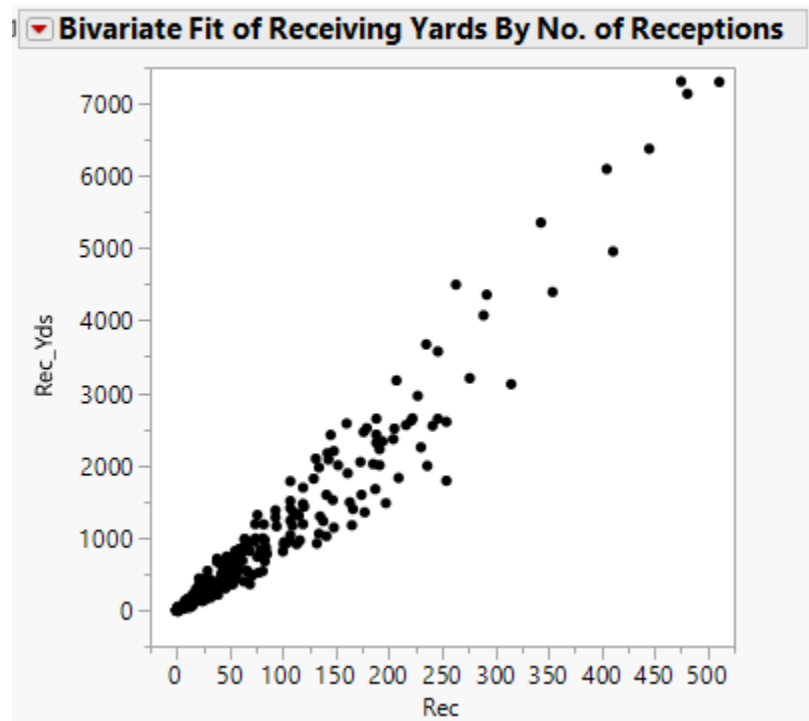
a) Circle the direction of the relationship between number of receptions and receiving yards is: POSITIVE   NEGATIVE

b) What are the 3 conditions of correlation and does it pass that condition

   1)

   Does it meet this condition? YES   NO

   2)

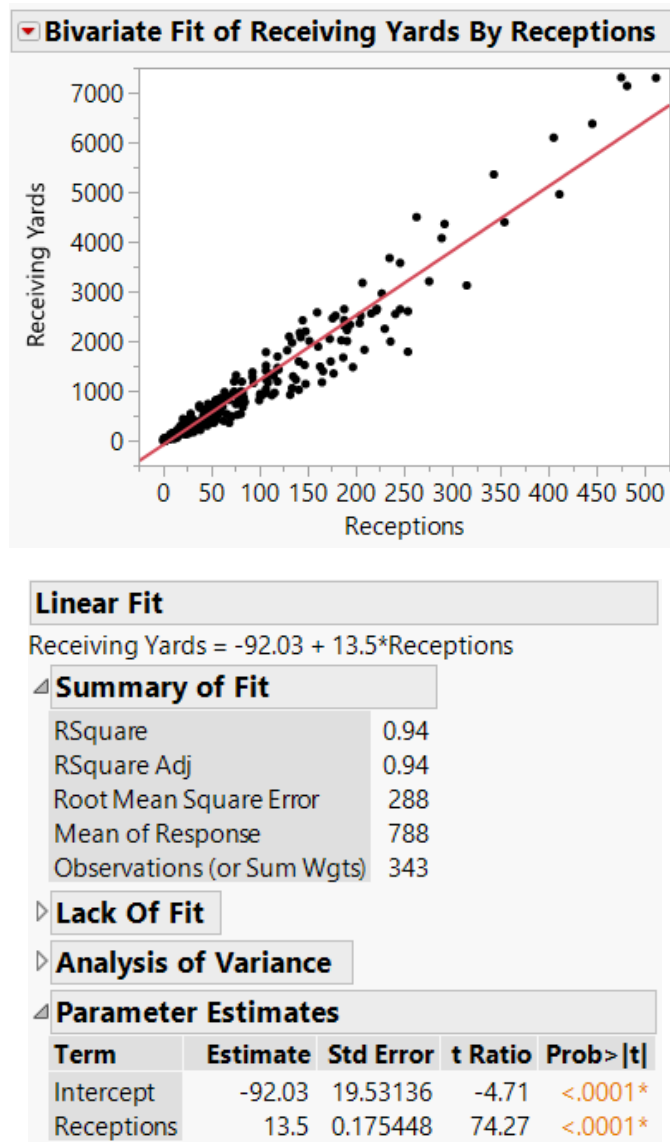   Does it meet this condition? YES   NO

   3)

   Does it meet this condition? YES   NO

c) If a player with 50 receptions and 4,000 receiving yards was added to the plot, what would happen to r? (Circle the best answer)

   r would stay the same   r would increase   r would decrease

A least squares regression line is fitted to the data. The output is below:

Bivariate Fit of Receiving Yards By Receptions

Linear Fit

Receiving Yards = -92.03 + 13.5*Receptions

Summary of Fit

RSquare	0.94
RSquare Adj	0.94
Root Mean Square Error	288
Mean of Response	788
Observations (or Sum Wgts)	343

▷ **Lack Of Fit**

▷ **Analysis of Variance**

Parameter Estimates

Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	-92.03	19.53136	-4.71	<.0001*
Receptions	13.5	0.175448	74.27	<.0001*

d) What is the 4th Condition for Regression?
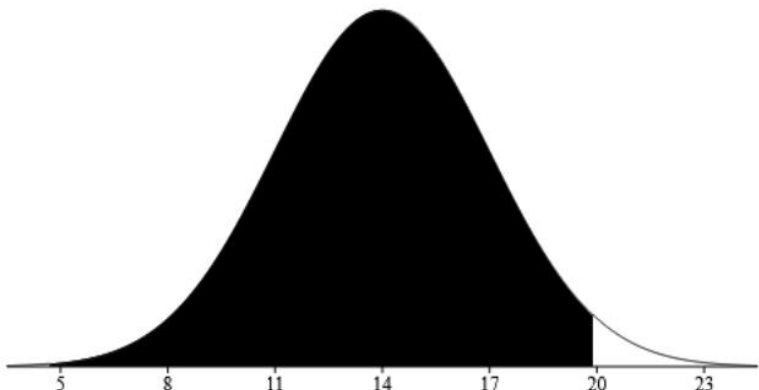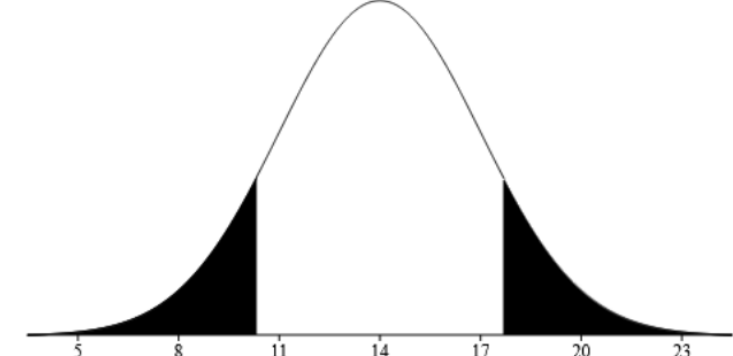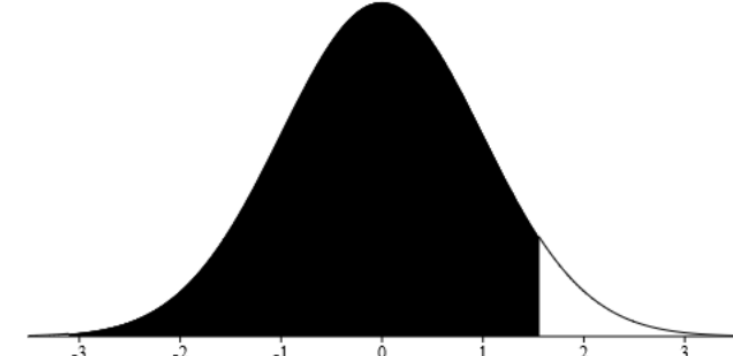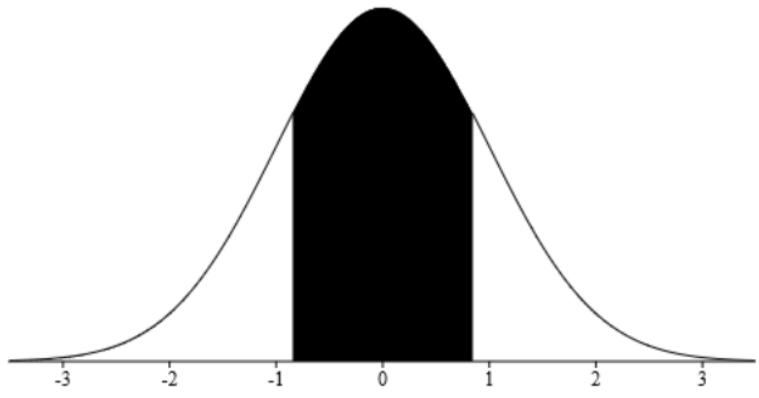
e) Interpret the slope:

f) Interpret the intercept:

g) Write out the full regression equation:

h) Calculate the correlation coefficient.

i) What is the residual for a player with 215 receptions and 2,265 receiving yards?

Graph 1		N(14, 3) Area below 19.88 lbs is 0.975
Graph 2		N(14, 3) Area outside of 10.32 lbs and 17.68 lbs is 0.22
Graph 3		N(0, 1) The bottom 94% is below 1.555
Graph 4		N(0,1) The middle 60% is between -0.842 and 0.842

2. The weight of the male Arctic Fox (*Vulpes lagopus*) ranges between 7 lbs and 21 lbs. Assume that a Normal model with an average of 14lbs and a standard deviation of 3lbs is appropriate N(14, 3). (Chapter 5)

   Use the graphics on the previous page to answer the following questions.

   a) What percent of arctic foxes are expected to have a weight less than 10.32 lbs?

   b) What percent of the arctic foxes are expected to have a weight higher than a z-score of 1.96?

   c) What percent of arctic foxes are expected to have a weight between 14 lbs and 17.68 lbs?

   d) What weight of the arctic fox represents the 20th Percentile?

   e) An arctic fox with a weight of 9.335 lbs would fall in which percentile?

3. The speed limit is 25 mph on Cumberland Avenue. During the construction along Cumberland Avenue, assume that the speed of cars follows the normal model with mean 22.53 mph and a standard deviation of 2.47 mph. (Chapter 5)

    a) Find the z-score for the speed limit.

    b) What percent of cars would you expect to be going over the speed limit?

    c) If a car is captured on radar at 28 mph, would you consider the speed of the car unusual? Justify your answer.

    d) What percent of cars would be driving with 28 mph or slower? Using only the 68-95-99.7 rule, provide as narrow of an interval as you can that contains the answer to this question. Fill in the blanks below.
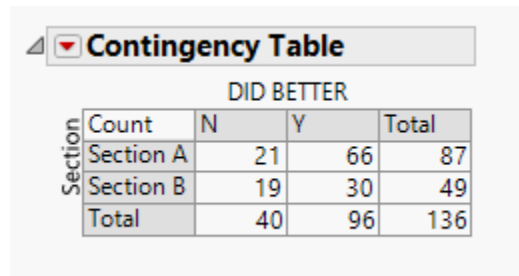
           The answer is greater than _____**%** but less than _____ %

4. Given below are the boxplots of annual emissions in kilotons of methane gas from a group of countries. (Chapter 4)

Boxplot of Methane (kiloton) Emissions 1990-2014
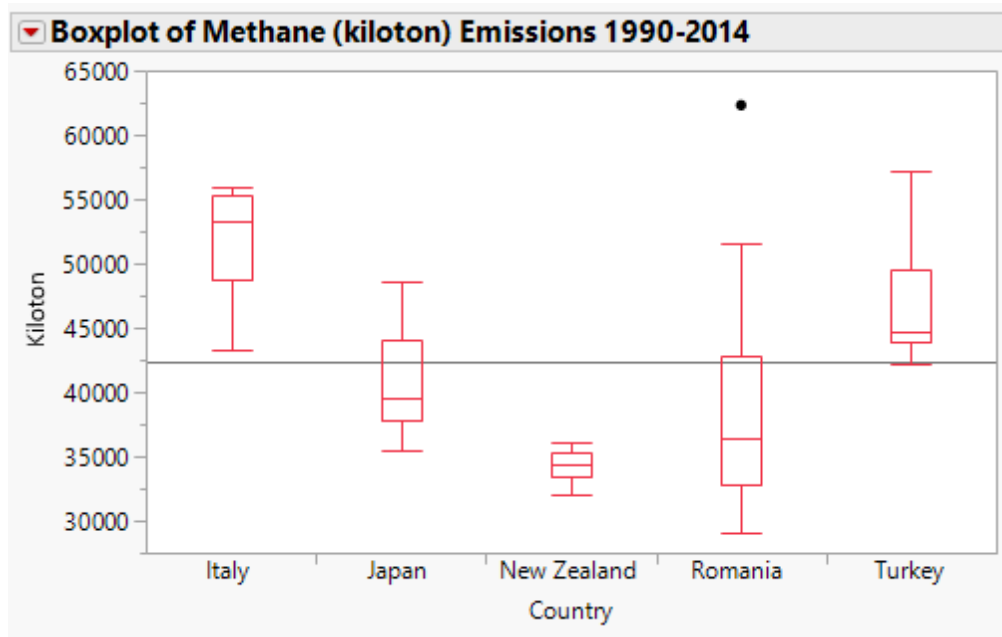
a) Which country has the highest median average emission of methane?

b) Which one describes the shape of the distribution of methane emissions in Romania?

      i. Skewed right   ii. Symmetric   iii. Skewed left

c) Which of the following statements is FALSE?

    i.   Italy's minimum emission is more than Turkey's minimum.

    ii.   Japan's median emission is less than Turkey's emission

    iii.   Romania had the year with the highest emission

    iv.   New Zealand was the least consistent on emission levels.

d) Approximately what value is the 75th Percentile for emission in Japan?

e) Approximately what value is Q1 for emission for Romania?

5. Consider the following JMP output from whether Students from two Stats 201 Sections did better on Exam 2 than Exam 1. (Chapter 3)

Contingency Table

Section		DID BETTER		
Count	N	Y	Total
Section A	21	66	87
Section B	19	30	49
Total	40	96	136

a) What percent of Section B did better on Exam 2?

b) What percent of the Section A did better on Exam 1?

c) What percent of the Students did better on Exam 2?

d) What visual graphic (or tool) could you use to see differences between the Sections?

6. Consider the following list of numbers: (Chapter 2)

23, 2, 15, 4, 9, 18, 6, 22, 5,27

a) Report the mean:

b) Report the median:

c) Report Q1:

d) Report Q3:

e) Report the IQR: