

Annastacia Stanley

Final Course Assessment

Part I

Directions: **Explain why each of the following questions is or is not a statistical question and provide a counterexample. Provide complete responses to each question.**

What are the favorite sports of the high school across Harlem Children Zone?

Yes

What is Semira's favorite color?

What are the more favorable colors amongst Semiora's age group?

How many years of college did the teachers in the Promise Academy I complete?

Yes

How tall is Lebron James?

How tall you do have to be to play in the NBA?

In the local forest, how many types of trees are there, and how many each type?

Yes

How far do most students live from school?

Yes

Directions (Questions 7-11): **Identify each of the following data sets as categorical (C) or numerical (N). Provide complete responses to each question.**

Times of marathoners __N_____

Favorite T-shirt color for each of volunteers__C_____

Type of music listened to by middle school students _____C_____

Pants color worn by officer workers_____C_____

Hours of sleep on a road trip for NBA basketball players ___N_____

12. Create a dot plot for the following set of data:

13. Mr. Brown recorded the following test scores for his math class:

Create a dot plot for the math test scores

Complete the tally mark and frequency columns in the table below:

Test Scores	Tally	Frequency

What score describes the center of the data?

What was the most common (or frequent) test score?

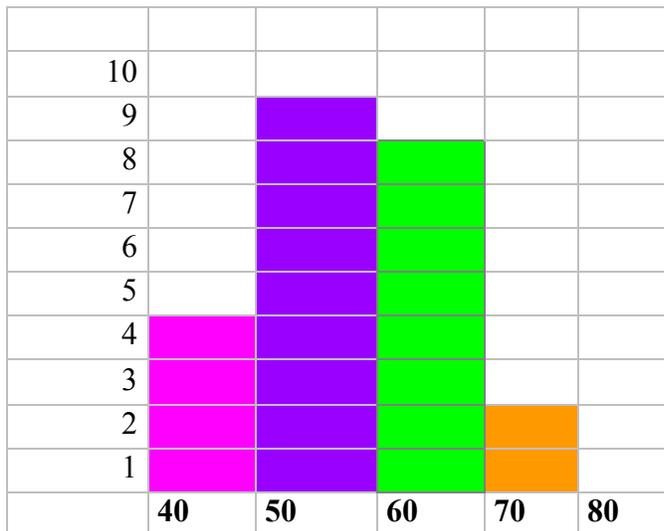
The table below represents the total points scored by the varsity basketball team for each of the 23 games played:

45, 50, 67, 72, 41, 62, 56, 59, 40, 60, 69, 47, 54, 76, 53, 64, 53, 57, 61, 64, 52, 56, 64
 40,41,45,47, 50,52,53,53,54,56,56,57,59, 60,61,62,64,64,64,67,69, 72,76

Complete the following table:

Interval of Game Scores	Tally	Frequency	Relative Frequency
40 - 49	1111	0	
50 - 59	5 1111	53,56	
60 - 69	5 111	64	
70 - 79	11	0	

Plot the histogram for the game scores (make sure label the axes)



Based on the histogram, describe the center of the game scores. How would the histogram change if you added the game scores 73 and 74?

The histogram would be equal to 40 - 49 game scores.

Directions (Questions 15-16): Find the mean, median, mode, and range of the following data sets. Provide complete responses to each question.

Directions (Question 18): **Complete the following stem-leaf tables.**

Construct stem leaf plots for the following data sets:

{ 16, 22, 33, 41, 42, 41, 41, 40, 27, 18}

Stem	Leaf
1	6, 8,
2	2, 7,
3	3
4	0, 1, 1, 1, 2

{ 41, 38, 47, 48, 22, 28, 25, 40, 30}

Stem	Leaf
1	
2	2, 5, 8,
3	0, 8,
4	0, 1, 7, 8,

{ 76, 83, 54, 43, 44, 44, 103, 99, 94}

Stem	Leaf
4	3, 4, 4,
5	4,
7	6,
8	3,
9	4, 9,
10	3,

Part II

The gas mileage of an automobile first increases and then decreases as the speed increases. Suppose that this relationship is very regular, as shown by the following data on speed (miles per hour) and mileage (miles per gallon):

Speed	30	40	50	60	70
Mileage	20	24	26	24	20

Make a scatterplot of mileage versus speed.

The correlation between speed and mileage is $r = 0$. Explain why the correlation is 0 even though there is a strong relationship between speed and mileage.

Below is a scatterplot of grade on exam 2 versus time spent playing video games in hours for the Exam 2 week for 40 students.

Describe the important features of the relationship between two variables:

Form: linear or nonlinear? linear

Direction: positive or negative (or no association)? No association

Strength: strong, moderate, weak? moderate

21. Use the least square method to determine the equation of the line of best fit for the data by completing the following table and then plot the line.

x	8	2	11	6	5	4	12	9	6	1
y	3	10	3	6	8	2	1	4	9	14

x	y	x(2)	y(2)	xy
8	3	64	9	24
2	10	4	100	20
11	3	121	9	33
6	6	36	36	36
5	8	25	64	40
4	2	16	4	8
12	1	144	1	12
9	4	81	16	36
6	9	36	81	54
1	14	1	196	14

Part III

Does education improve your chances of being employed? The following table provides data on the educational attainment and employment status of the U.S. population, 25 years of age and older, in the labor force as of October 2012. The data is in thousands of people. (Source: *Bureau of Labor Statistics*.)

	Less than a High School Diploma	High School Graduates, No College	Some College or Associate Degree	Bachelor's Degree and Higher	Total
Employed	9,886	33,702	35,176	46,849	125,613
Unemployed	1,377	3,076	2,599	1,827	8,879
Total	11,263	36,778	37,775	48,676	134,492

What is the probability that a randomly selected person:

Is unemployed? 8,879

Is unemployed given that he/she has less than a high school diploma? 1,377

Are the events “unemployed” and “less than a high school diploma” independent? no

Is unemployed given that he/she is a high school graduate with no college education? 3,076

Is unemployed given that he/she has some college education or an associate degree? 2,599

Is unemployed given that he/she has at least a bachelor's degree? 1,827

Based on your answers to parts b. through e., would you say that education improves your chances of being employed? yes

Is unemployed and has at least a bachelor's degree? 1,827

Has less than a high school diploma or is a high school graduate with no college education? 4,453

Are the events “less than a high school diploma” and “high school graduate with no college education” mutually exclusive? no

Are women more likely to be unemployed than men? The following table provides data on the gender and employment status of the U.S. population, 16 years of age and older, in the labor force as of October 2012. The data is in thousands of people. (Source: *Bureau of Labor Statistics*.)

	Men	Women	Total
Employed	76,055	67,329	143,384
Unemployed	6,642	5,616	12,258
Total	82,697	72,945	155,642

What is the probability that a randomly selected person:

Is unemployed given that she is a woman? 5,616

Is unemployed given that he is a man? 6,642

Based on your answers to parts a. and b., would you say that women are more likely than men to be unemployed? No