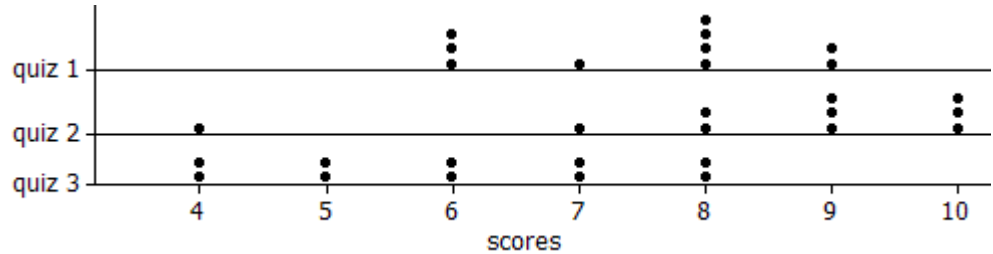


Quiz #7 - Descriptive Statistics

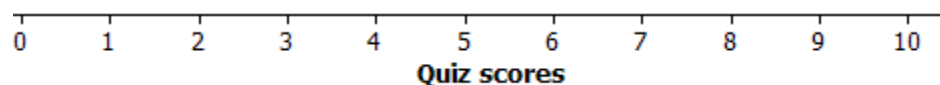
Name _____ Class _____ Due _____

Use the information below to answer questions 1 – 6. *The scores of three quizzes are shown in the following data plot for a class of 10 students. Each quiz has a maximum possible score of 10. Possible dot plots of the data are shown below.*

- 1.) On which quiz did students tend to score the lowest? Justify your choice. **(2 points)**



- 2.) Without performing any calculations, which quiz tended to have the most variability in the students' scores? Justify your choice based on the graphs. **(2 points)**
- 3.) If you were to calculate a measure of variability for Quiz 2, would you recommend using the interquartile range or the standard deviation? Explain your choice. **(2 points)**
- 4.) For Quiz 3, move one dot to a new location so that the modified data set will have a larger standard deviation than before you moved the dot. Be clear which point you decide to move, where you decide to move it, and explain why. **(2 points)**
- 5.) On the axis below, arrange 10 dots, representing integer quiz scores between 0 and 10 so that the standard deviation is the largest possible value that it may have. You may use the same quiz score values more than once. **(2 points)**



- 6.) Calculate the standard deviation for your dot plot in #5: _____ **(2 points)**

7.) Suppose the lowest score for Quiz 2 was changed from 4 to 2, and the mean and median are recomputed, which will change more? **(2 points)**

- (A) Mean
- (B) Median
- (C) They will change the same amount.
- (D) Cannot be determined

8.) The freshman class held a canned food drive for 12 weeks. The number of cans collected for each week is listed below.

20, 35, 32, 45, 58, 46, 28, 23, 31, 79, 65, 62

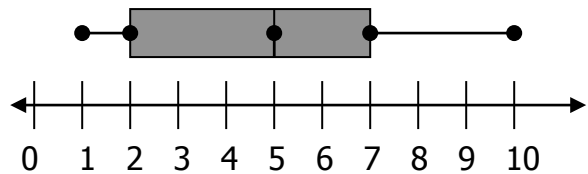
Which number represents the second quartile of the number of cans of food collected?

(2 points)

- (A) 29.5
- (B) 30.5
- (C) 40
- (D) 60

9.) Which best describes the box-and-whisker plot shown below? **(2 points)**

- (A) All of the data lies between 2 and 7.
- (B) 50% of the data values are at or below 7.
- (C) The number 5 is a data value
- (D) There are no data values below 1.



10.) Which data set describes a situation that could be classified as qualitative (categorical)?

(2 points)

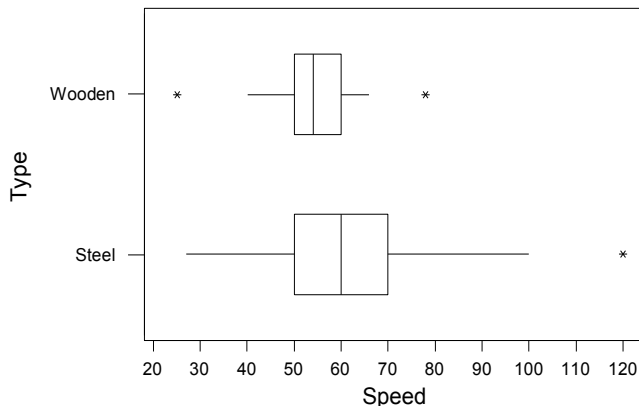
- (A) the ages of students in Mrs. Zaborny's Spanish class
- (B) the test scores of students in Mr. Turner's class
- (C) the favorite ice cream flavor of each of Mr. Armstrong's students
- (D) the heights of the players on the Webster Schroeder basketball team

11.) Which situation is an example of bivariate data? **(2 points)**

- (A) the number of pizzas Nate eats during his years in middle school
- (B) the number of times Montana puts air in her bicycle tires during the summer
- (C) the number of home runs Alex hits per game and the number of hours he practices baseball
- (D) the number of hours Erin studies for her math tests during the first half of the school year

Use the information below to answer questions 12 – 16.

The box plots below display the distributions of maximum speed for 145 roller coasters in the United States, separated by whether they are wooden coasters or steel coasters.



Based on the box plots, answer the following questions or indicate whether you do not have enough information.

- 12.) Which type of coaster has more observations? **(1 point)**
- A. Wooden
 - B. Steel
 - C. About the same
 - D. Cannot be determined
- 13.) Which type of coaster has a higher percentage of coasters that go faster than 60 mph? **(1 point)**
- A. Wooden
 - B. Steel
 - C. About the same
 - D. Cannot be determined
- 14.) Which type of coaster has a higher percentage of coasters that go faster than 50 mph? **(1 point)**
- A. Wooden
 - B. Steel
 - C. About the same
 - D. Cannot be determined
- 15.) Which type of coaster has a higher percentage of coasters that go faster than 48 mph? **(1 point)**
- A. Wooden
 - B. Steel
 - C. About the same
 - D. Cannot be determined

16.) Write 2–3 sentences comparing the two types of coasters with respect to which type of coaster normally goes faster. **(2 points)**

17.) The following table shows a list of famous people and their IQ's (or their estimated IQ's if they weren't alive when the testing was invented). **(6 points)**

Person	IQ
Leonardo da Vinci	220
William Shakespeare	190
Albert Einstein	190
Napoleon	180
Pablo Picasso	175
Bill Gates	173
Marilyn Monroe	163
Mahatma Gandhi	160
Richard Nixon	143
Bill Clinton	140
Madonna	140
Shakira	140
Arnold Schwarzenegger	135
Nicole Kidman	132
Walt Disney	123
Average person	100
Koko the trained gorilla	90

a.) What is the minimum IQ in this table?

b.) What is the lower quartile value?

c.) What is the median?

d.) What is the upper quartile value?

e.) What is the maximum IQ in this table?

f.) Draw a box-and-whisker plot using this information. Be sure to include an appropriate scale on the number line.



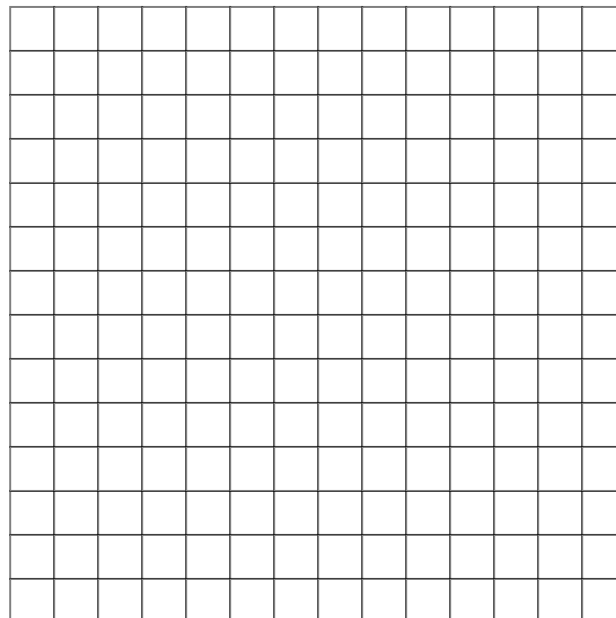
18.) The table to the left shows the shoe sizes of 15 famous people. **(5 points)**

a.) Complete the frequency column in the chart below.

Marilyn Monroe	7
John Travolta	22
Brigit Hall	8
Bill Clinton	13
Abraham Lincoln	13
Thomas Jefferson	12.5
Shania Twain	6.5
Tyra Banks	9
Shaq	22
Michael Jordan	13
Lisa Leslie	13
David Beckham	10
Yao Ming	18
Cinderella	4
Lebron James	15

<i>Interval</i>	<i>Frequency</i>
0-4	
5-9	
10-14	
15-19	
20-24	

b.) Draw a histogram using the given intervals. **Make sure to choose an appropriate scale, title your graph, and label your axes.**



19.) A survey is conducted to find out if different age groups of people affect the type of pets they own. The results are shown in the table to the right. **(6 points)**

C represents children

A represents adults

S represents small mammals

M represents marine animals

CD represents cats & dogs

a.) Complete the two-way table using the data given.

Type of Pet Owned

		Type of Pet Owned			Total
		Small Mammals	Marine Animals	Cats & Dogs	
Age Group	Children				
	Adults				
	Total				

b.) C

calculate the **conditional relative frequencies** (and fill in the blanks in the table) to compare the distribution of age groups among the types of pets owned.

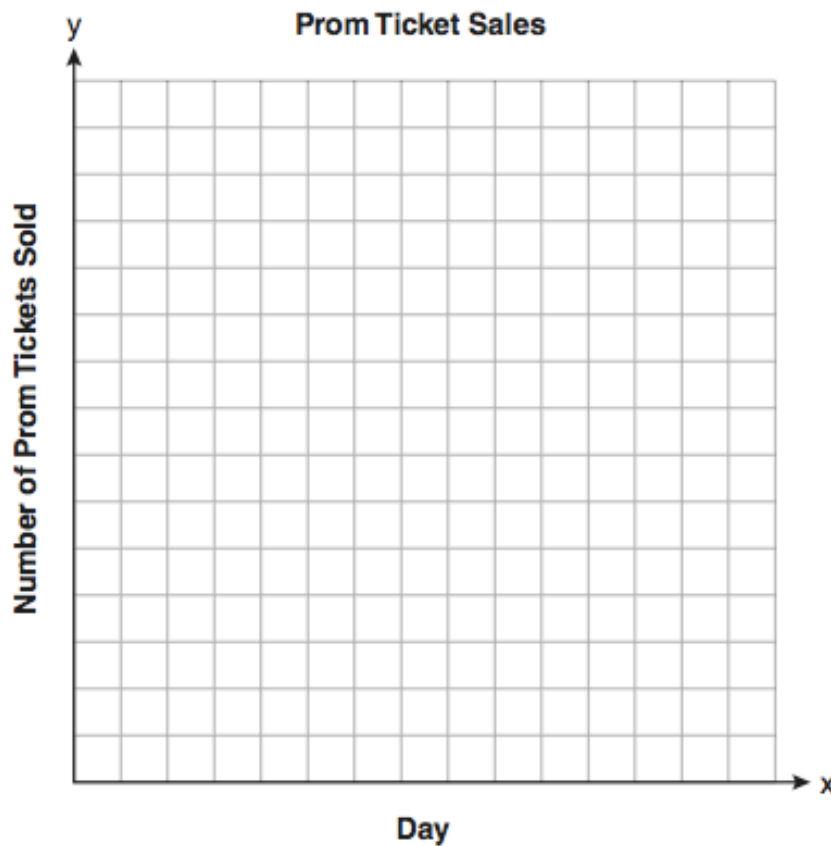
	Small Mammals	Marine Animals	Cats & Dogs
Children	----- =	----- =	----- =
Adults	----- =	----- =	----- =
Total	1	1	1

Age Group	Pet Type
C	S
C	M
A	M
C	M
A	CD
A	S
A	M
A	M
A	M
A	M
C	S
A	M
A	M
C	CD
A	CD
A	S
C	CD
C	S
C	S
A	M
A	CD
A	S

20.) The table below shows the number of prom tickets sold over a ten-day period. **(5 points)**

Prom Ticket Sales					
Day	1	2	5	7	10
Number of Prom Tickets Sold	30	35	55	60	70

a.) Plot these data points on the coordinate grid below. Use a consistent and appropriate scale.



b.) Find the equation of a line of best fit and sketch it in. Round to the nearest hundredth.

c.) Interpret the meaning of the slope of the line of best fit.

d.) Predict how many prom tickets would be sold on day 12. Round to the nearest ticket.

***Bonus* (1 point)**

Solve for x. $\frac{2}{3}x + \frac{1}{2}x = x + 1$