

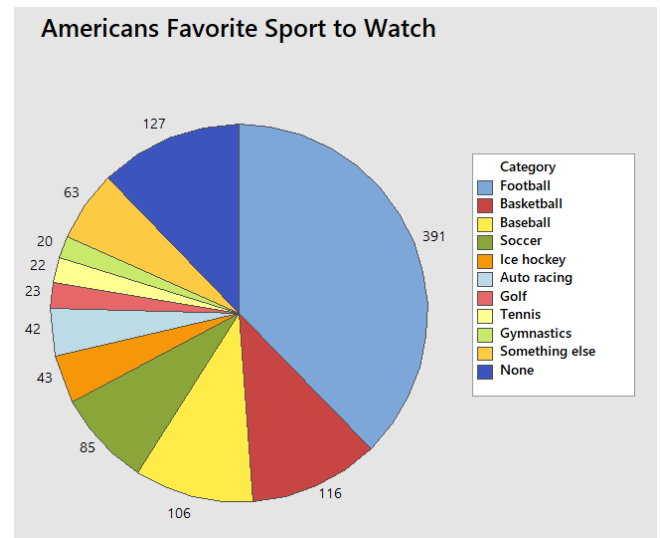
Math 10 Homework 1

1. Identify the following data by **type** (categorical, discrete, continuous)
 - a. Number of tickets sold at a rock concert.
 - b. Make of automobile.
 - c. Age of a fossil.
 - d. Temperature of a nuclear power plant core reactor.
 - e. Number of students who transfer to private colleges.
 - f. Cost per unit at a state University.
 - g. Letter grade on an English essay.

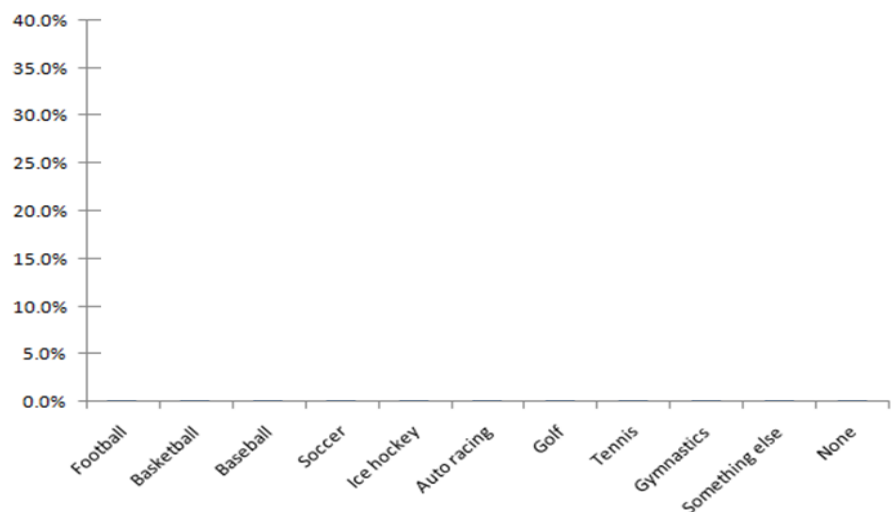
2. Identify the following **level** (nominal, ordinal, interval, ratio)
 - a. Number of tickets sold at a rock concert.
 - b. Make of automobile.
 - c. Age of a fossil.
 - d. Temperature of a nuclear power plant core reactor.
 - e. Number of students who transfer to private colleges.
 - f. Cost per unit at a state University.
 - g. Letter grade on an English essay.

3. 1038 Americans were asked, "What is your favorite sport to watch?" The results were summarized into a pie graph.

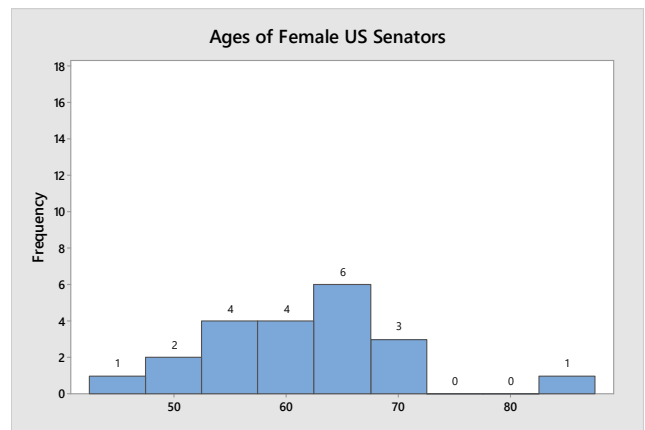
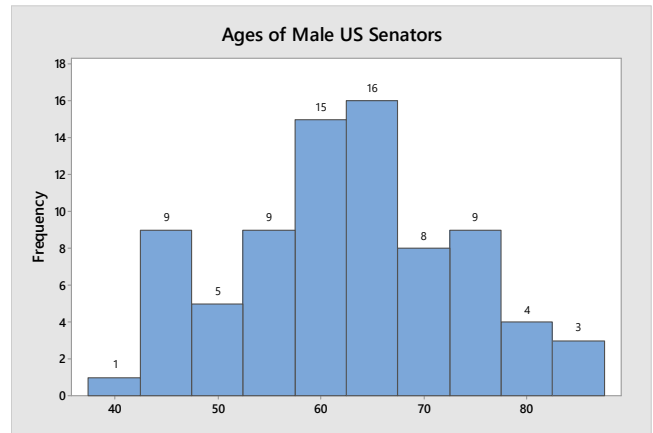
- a. Interpret the pie graph.
- b. Do you think a different graph would have a clearer way to show this data? Explain.
- c. Using the same data create a bar graph. Instead of labeling each bar with counts, use percentages.



- d. Compare the bar graph to the pie graph. In your opinion, which of these two graphs better explains the data?

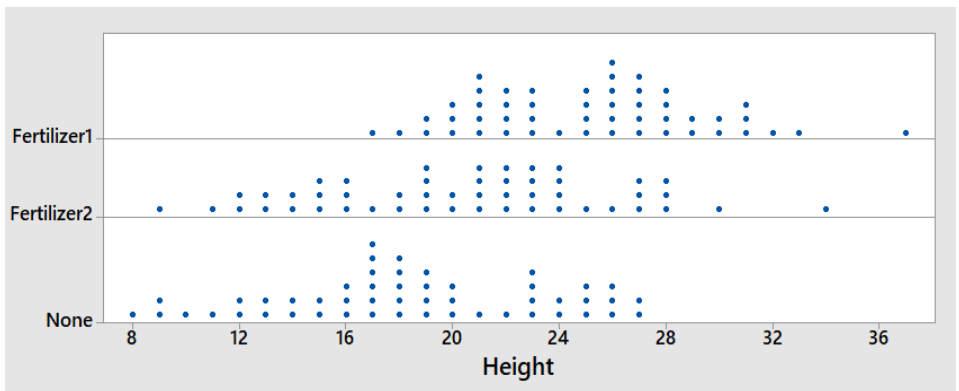


4. The two frequency histograms represent the ages of 78 Male US Senators and 22 Female US Senators. Ages were evaluated on October 20, 2017.



- a. Estimate the center of each graph. Does there seem to be a difference in average age due to gender in the US Senate?
- b. Estimate the range of each graph. there seem to be a difference in age spread due to gender in US Senate
- c. Is there a difference in shape between the two graphs?
- d. Senator Diane Feinstein of California, who is 84 years old, represents an outlier among the females. Would your answers to parts a, b or c change if Senator Feinstein were removed from the data? Explain.

5. An experiment was conducted on string bean plants. The plants were broken into three groups. The first group was given Fertilizer 1, the second group was given Fertilizer 2, and the third group was given no fertilizer. After 2 months, the heights in inches were measured with results shown in the dot plot. From the dot plots, describe the center, spread, shape and unusual features of each group, and then make an overall statement about the fertilizers.



7. The following data represents recovery time for 16 patients (arranged in a table to help you out)

count	Days (X)	$X - \bar{X}$	$(X - \bar{X})^2$	Z Score
#1	2			
#2	3			
#3	4			
#4	4			
#5	5			
#6	5			
#7	5			
#8	5			
#9	5			
#10	6			
#11	6			
#12	7			
#13	7			
#14	8			
#15	8			
#16	16			
Totals				

- Calculate the sample mean and median
- Complete the 3rd and 4th column of the table and then calculate the variance and standard deviation.
- Use the range of the data to see if the standard deviation makes sense. (Range should be between 3 and 6 standard deviations)
- Using the empirical rule between what two numbers should you expect to see 68% of the data? 95% of the data? 99.7% of the data?
- In the last column of the table, calculate the Z-score for each observation. Do you think any of these data are outliers?