

2023-2024 AP Statistics Summer Assignment

The purpose of this assignment is to familiarize students with a variety of graphical displays. Students may not be required to create all the following types of graphs on an AP exam but will be required to interpret information from all these types of graphs. To prepare for a rigorous AP Statistics curriculum, students will create ONE of each type of graph below from raw data of their choice as well as answer questions based on EACH of the graphs provided.

Directions:

1. Familiarize yourself with each of the following types of graphs below:

- i. Bar Graph
- ii. Dot Plot
- iii. Boxplot
- iv. Stemplot
- v. Histogram

Note:

- Each type of graph is accompanied by a link in the document below. Each link will provide additional information and/or examples for these types of graphical displays and may also provide information on how to create them.
 - Students are encouraged to use other resources if the link does not provide enough information for them to be able to create the graph on their own.
2. Collect or create raw data that you can use to create each type of graph.
- You must include the raw data and its source with each graph either in a table or list as appropriate.
 - Please list the source of your data by listing the website, article, or, if you created the data on your own explain how (i.e., a survey or through observation/experimentation).
 - You DO NOT need to have different sets of data for each type of graph, data sets may be used more than once as appropriate.
3. Part 1: Create your graphs from your data by hand.
- Graphs to be included: Bar Graph, Dot Plot, Boxplot, Stemplot
 - Make sure to properly label and title your graphs.
4. Part 2: Answer questions based on the graphs provided.
- Graphs to be included: Bar Graph, Dot Plot, Boxplot, Stemplot, Histogram
 - If the problem asks you to mathematically find an answer, work needs to be provided. If a calculator is used, write down the steps taken to find that answer.
5. Submit your Summer assignment (hard copy) within the first week of return to the 2023-2024 school year.

****If you have any questions about your summer assignment, feel free to email me, Miss Fulton, using the following email address: kfulton@mcpsva.org. I will be checking my email periodically over the summer.**

I look forward to meeting you all in the fall!

Sincerely,

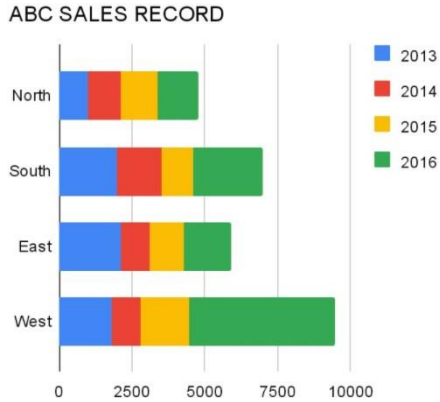
Miss Fulton

Types of Graphs Quick Reference:

Each of the following types of graphs is accompanied by a link. Each link will provide additional information and/or examples about these types of graphical displays and how to create them.

Categorical Data

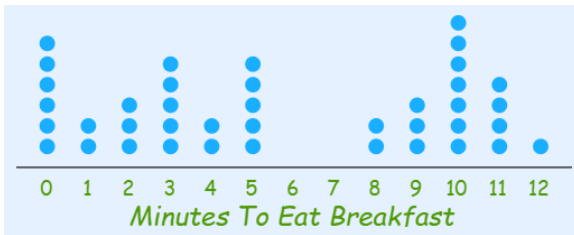
Bar Graph:



<https://www.formpl.us/resources/graph-chart/bar/>

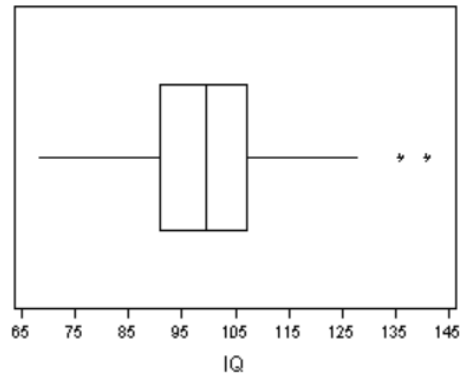
Quantitative Data

Dot Plot:



<https://www.mathsisfun.com/data/dot-plots.html>

Boxplot:



<https://online.stat.psu.edu/stat414/book/export/html/741>

Stemplot:

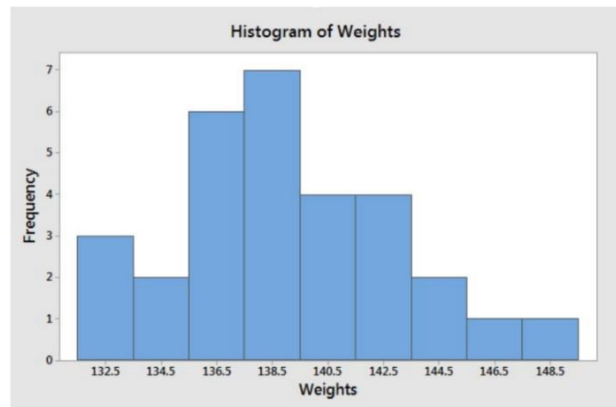
Final Sale Price (to nearest dollar)

3	4 4 5
4	
5	2
6	1 1 2 5 5 5 5
7	2 3 6 7 9
8	9 9
9	7
10	0 4 8
11	
12	
13	
14	
15	0

Key: 8|0 = 80

<https://www.mathbootcamps.com/how-to-read-a-stemplot/>

Histogram:



<https://chartio.com/learn/charts/histogram-complete-guide/>

Name: _____

Date: _____

Part 1: Creating Graphical Display

1. Bar Graph

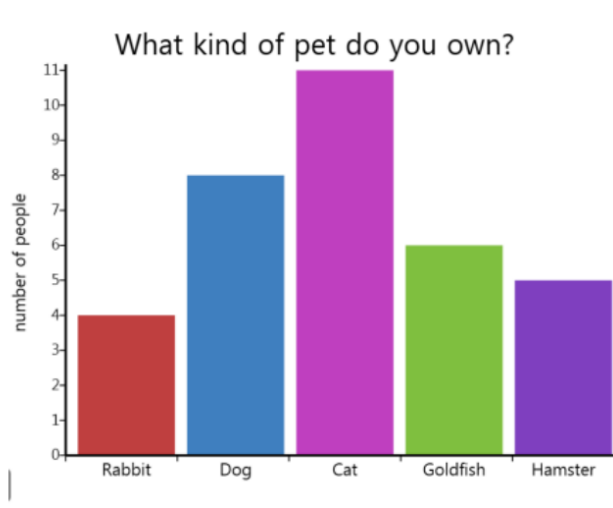
2. Dot Plot

3. Boxplot

4. Stemplot

Part 2: Graphical Display Questions

1. Bar Graph: Write at least 3 sentences describing what you see/notice in the following bar graph.

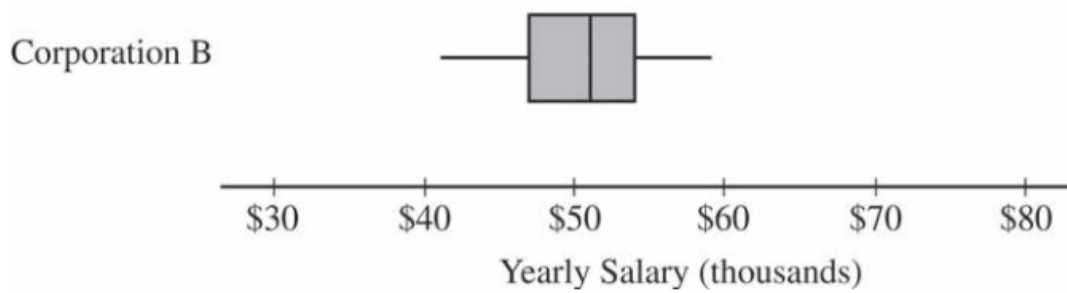


2. Dot Plot



- How many total soft drinks are represented on the graph?
- Find the mean number of soft drinks?
- Find the median number of soft drinks?
- What is the standard deviation for the number of soft drinks?
- What is the range for the number of soft drinks?
- What is the IQR ($Q3 - Q1$) for the number of soft drink?
- Is there any data lower than $Q1 - 1.5(Q3 - Q1)$? If so, what value(s).
- Is there any higher than $Q3 + 1.5(Q3 - Q1)$? If so, what value(s).

3. Box Plot



- How many yearly salaries are shown in this graph?
- What is the five-number summary? (Min, Q1, Median, Q3, Max)
 - Min =
 - Q1 =
 - Median =
 - Q3 =
 - Max =
- What percentage of the data is between the following values?
 - Min and Q1 =
 - Q1 and Q3 =
 - Median and Max =
 - Min and Q3 =
- What is the range of the yearly salary?
- Is there any data lower than $Q1 - 1.5(Q3 - Q1)$? If so, what value(s).
- Is there any higher than $Q3 + 1.5(Q3 - Q1)$? If so, what value(s).

4. Stemplot

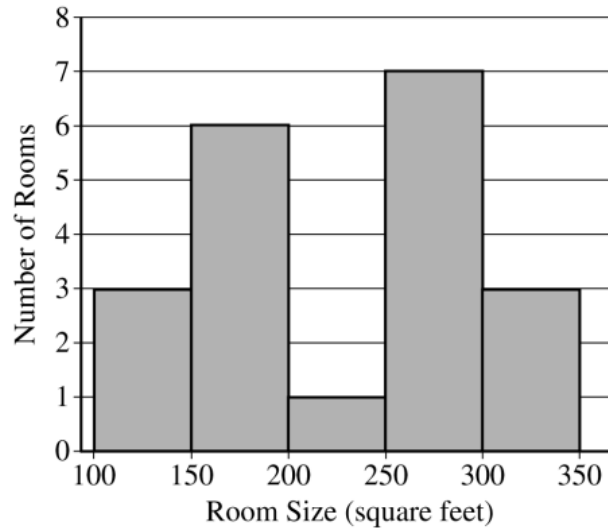
Questions Answered Correctly on the Last Test

0| 89
1| 02346678899
2|
3| 3568
4| 134

Legend: 1| 2 represents 12 questions answered correctly

- How many total tests were taken?
- What is the mean of the questions answered correctly?
- What is the median of the questions answered correctly?
- What is the standard deviation of the questions answered correctly?
- What is the range of the questions answered correctly?
- Is there any data lower than $Q1 - 1.5(Q3 - Q1)$? If so, what value(s).
- Is there any higher than $Q3 - 1.5(Q3 - Q1)$? If so, what value(s).

5. Histogram



- What is the total number of rooms represented in the graph above?
- What are the actual room size for range of room size of 200-250?
- What range of room size has the greatest number of rooms?
- What range of room size has the least number of rooms?
- What is the range of all room sizes represented in the graph above?