

AP Statistics

2016 Summer Assignment

The amount of time we have in the classroom isn't sufficient to properly cover the amount of material we need to for the AP Exam. Therefore, we must begin our course by completing this summer assignment. Some of this material will be review from earlier math classes. Some material will require research.

The assignment is in three parts (listed below).

ALL parts of the assignment will be due during the FIRST class period.

Be prepared for a quiz.

Part I: Terms and Questions

Attached to this packet is a list of terms and questions. On your first sheet of paper title it "Summer Assignment - Part I Terms" at the top. On that sheet, define all the terms listed. On another sheet, labeled "Summer Assignment - Part I Questions", answer the questions listed. Information on these terms and questions are available all over the internet. If you find a great site for AP Statistics, bring it to share with everyone.

Part II: The Survey

You will conduct a survey over the summer. You will create a question, ask that question to 25 or more people, and record your data. The answer to your question must be a numerical value. Do not use "Yes or No" questions. Before you begin asking your question, you need to ask yourself if the question is appropriate for school and something that I would approve. If you have a question about what you have selected then you probably need to come up with a different question.

Here are some sample questions to help your thinking along:

- How many hours of TV do you watch weekly?
- How fast could you run a mile?
- How many boxes of Girl Scout Cookies did you buy?
- How many of the United States have you been to?
- How much money would your dream job pay?

You will turn in a sheet on the first day for this portion of the assignment as well. Title it: "Part II - Summer Assignment". State your question and give the list of responses given from your survey. Take the time to detail and describe the circumstances of your survey. For example, where did you find the people you questioned? How long did it take you? How many people did you survey? Did anyone refuse to answer? etc.

Part III: Data displays

Once you have created a question and taken your survey, you'll need to create three different data displays for your results. Your term definitions from Part I should help you understand how to do that.

You will create one boxplot, one stemplot and one histogram with your data results. Make sure each of the three plots is *properly labeled*. If you don't know what that entails, research or ask.

These three plots should each be labeled "Summer Assignment - Part III". Under that, you should label your data, etc. This can be computer generated or hand drawn (neatly) on paper or a poster.

I hope you all have a nice summer. Don't save this until the last minute. It will show.

Ms. Martin-Smith

Summer Assignment Terms:

General Terms:

Individuals

Variable

Distribution

Types of Variables:

Quantitative Variable

Qualitative Variable

Categorical Variable

Ways to Display Data:

Pie Chart

Scatterplot

Histogram

Bar Graph

Dot Plot

Boxplot

Stem & Leaf Plot

Ogive

Terms associated with 'shape' of a data set:

Symmetrical

Skewed Left

Skewed Right

Terms associated with 'center' of a data set:

Mean

Median

Terms associated with the 'spread' of a data set:

Variance

Standard Deviation

Range

IQR

Miscellaneous terms associated with display of data:

Outlier

5-Number Summary

Quartile

Maximum

Minimum

Decile

Resistant

Nonresistant

Summer Assignment Questions:

1. What is the difference between a quantitative and qualitative variable?
2. 'Categorical' is another term for which type of variable?
3. Of the "Ways to Display Data above", which ones are used to display quantitative variables? Which ones are used to display qualitative variables?
4. What is the 5-number summary of a data set?
5. How do you mathematically determine if a data set has an outlier?
6. Would the grade distribution of scores on a quiz in an AP class be symmetrical, skewed right or skewed left? Explain.
7. If data is skewed, is it better to describe its center with mean or median? Why?
8. If a data set is skewed, is it better to describe its spread with the standard deviation or IQR? Why?
9. Classify each of the following as *resistant* or *non-resistant*:

Mean Median Standard Deviation IQR Variance

10. What does it mean to "split stems" when making a stem and leaf plot?
11. What is the relationship between variance and standard deviation?
12. When would the standard deviation of a data set be zero? When might it be negative?