Welcome to AP Statistics!

This assignment is designed to review the basic concepts of statistics in preparation for the advanced level course work. These are all statistics skills/concepts presented in previous math courses.

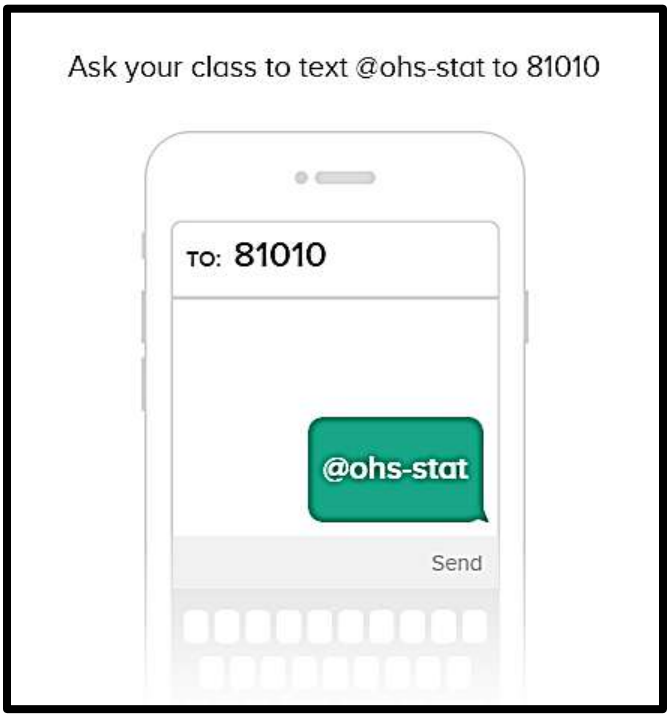
Topics include:

- Numerical analysis (mean, median, standard deviation, quartiles)
- Graphical analysis (histograms, boxplots, skewedness)
- Statistical Reasoning (comparing data and analyzing statistical methods)
- Calculator usage

Using the resources found on my OHS webpage, complete the attached assignment.

The assignment is due the SECOND day of school and will count as a 50 point TEST GRADE.

If you have questions during the summer, you can reach me by email at ryoung@henry.k12.ga.us or message me through REMIND by joining my class using the information below.



Have a wonderful summer and I will see you at the start of school!!! ☺

\- *Ms. Young*

AP Statistics Summer Assignment Name _____

1) Below are the typing speeds (words per minute) for 22 secretarial applicants of an international cosmetic company:

68 72 91 47 52 75 63 55 65 35 69 70 84 45 58 61 69 22 46 55 66 71

a) Find the following statistics regarding the typing speed of the 22 applicants

$(mean)\ \bar{x} =$ _____ *(Standard deviation)* $s_x =$ _____

Five number summary: min = _____

Q1 = _____

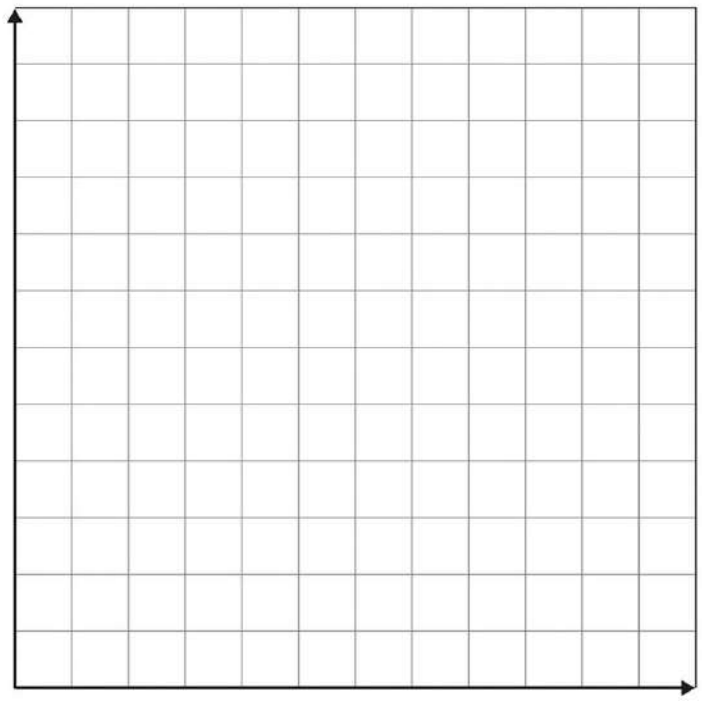
Median = _____

Q3 = _____

max = _____

IQR = _____

b) Create a well labeled histogram of the data. Describe the distribution of typing speeds referring to shape, center, spread, and outliers.



2) The age of members of a local cycling club are shown below:

14 17 18 18 19 20 20 21 23 24 25 25 31 37 39 53 59 73

a) Find the five number summary and IQR for this data and determine if there are any outliers, using the outlier test described in the notes.

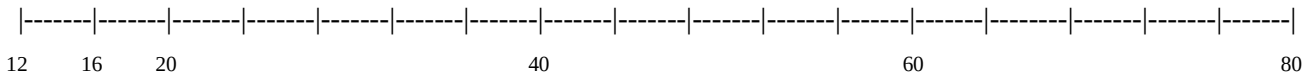
min = _____ Q1 = _____

Median = _____ Q3 = _____

max = _____ IQR = _____

Outliers?

b) Create a boxplot ON the number line below. Describe the distribution referring to shape, center, spread, and outliers.



c) Using your calculator, create a MODIFIED boxplot and draw that ABOVE the number line. What are the advantages (if any) of using a modified boxplot over a basic boxplot.

3) The scores of 18 first year college ***women*** on the Survey of Study Habits and Attitudes (this psychological test measures motivation, study habits and attitudes toward school) are given below:

154 109 137 115 152 140 154 178 101 103 126 126 137 165 165 129 200 148

The college also administered the test to 20 first-year college ***men.*** There scores are also given:

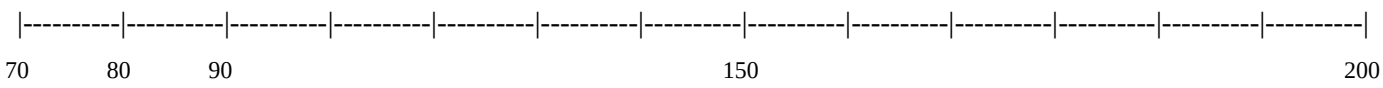
108 140 114 91 180 115 126 92 169 146 109 132 75 88 113 151 70 115 187 104

Construct side-by-side modified boxplots for the two data sets. (boxplots stacked on top of each other using the SAME SCALE)

Write a narrative comparison of the shape, center, spread, and unusual features of the two distributions.

Women

Men



4) Consider the following table about years of education completed by age.

	25 to 34	35 to 54	55 & over	Total
Did not complete high school	5325	9152	16035	30512
Completed high school	14061	24070	18320	56451
1 to 3 years of college	11659	19926	9662	41247
4 or more years of college	10342	19878	8005	38225
Total	41387	73026	52022	166435

If a person is chosen at random from this population:

a) What is the probability that the person is between 25 and 34 years of age?

b) What is the probability that the person is between 25 and 34 years of age **and** 55 & over years of age?

c) What is the probability that a person is between 25 and 34 years of age **or** 55 & over years of age?

d) What is the probability that a person is between 25 and 34 years of age **and** that they have completed 1 to 3 years of college?

e) What is the probability that a person is 35 to 54 years of age **or** has 4 or more years of college?

f) If the person is 55 & over years of age, what is the probability that they completed 1 to 3 years of college?

5) Answer each question about outcomes and probability below.

a) In Yahtzee, if you roll a five of a kind (meaning you roll all 3's, for example) you get a "Yahtzee!" What is the probability of rolling a "Yahtzee" on your first roll?

b) Mr. Snyder is very proud of his beat up old car. So much so, he put a new pass code system on his car so that you have to enter a code just to unlock the car. The pass code is 4 digits long. The first digit must be 0. The second digit must be an even number. The third digit must be an odd number. The fourth digit must be greater than 8. How many outcomes are possible?

c) One red, one green, and one yellow die (6 sided cube numbered 1 - 6) are rolled.

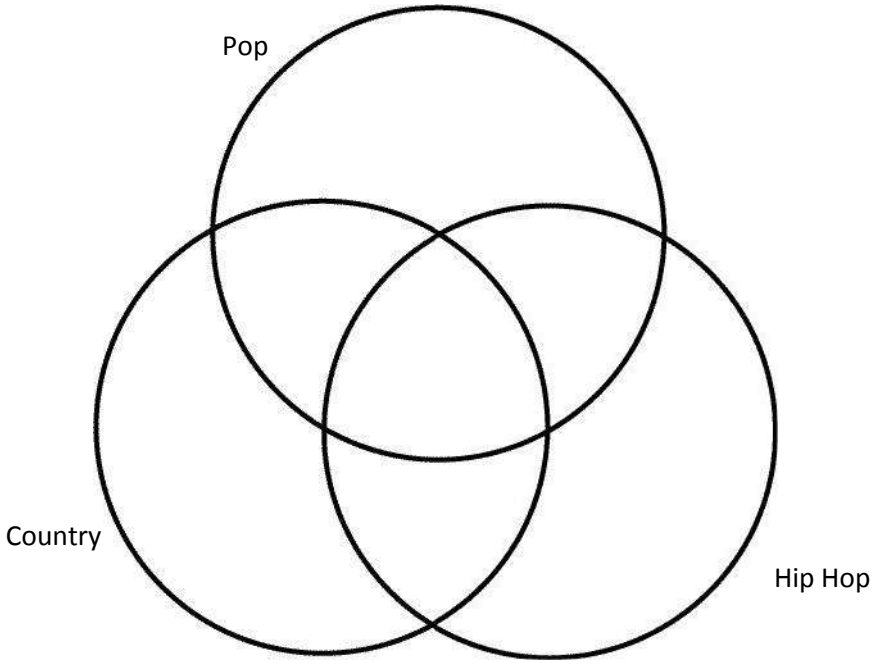
i) What is the probability that all three show a 4?

ii) What is the probability that NONE of the three show a 4?

iii) The red die shows and even number and the other two show two DIFFERENT odd numbers?

d) In a recent survey of teenagers of music preference, 44 said they like Pop, 42 like Hip Hop, and 33 like Country. Additionally, 18 that said they like Pop also like Hip Hop, 15 of those that like Pop also like Country, and 8 that like Country also like Hip Hop.

Complete the venn diagram for the given situation.



6) Suppose you are the Spokesperson for a prominent US Senator. The Senator is considering sponsoring a bill to lower the legal drinking age from 21 to 18. He wants to assess the public opinion of his constituents before proceeding. He asks you to administer a survey to determine public support for the proposal. You want to make sure that your results are reliable, so you assign three of your assistants to go out and perform independent surveys. When they report back, you are disappointed to find that the three assistants have determined that public support for the proposal is 84% (report A), 47% (report B), and 12% (report C).

What could explain the huge differences in the results of the three reports? Use complete, detailed sentences.