Name:_____

AP Statistics Summer Assignment

Welcome to AP Statistics! What you will find below should be a review of statistics you have learned in previous classes. If you find yourself having difficulties, use a friend or the internet for some help. Make sure to have this done when school starts up; it will be your first quiz grade.

1. Data Analysis

In a rural town in Oklahoma during the 1970's, the following data was collected concerning the age at which the eldest child in a family to get his/her license.

M	16	16	17	16	18	17	17	16	16	27	16	17	16	17	16	16
F	17	18	19	20	18	19	20	18	18	17	16	18	19	17	18	

A. Calculate the following statistics for the male and female data separately.

	Females	Males	Males w/o outlier
Mean			
Median			
Mode			
Range			

B. Use a dot-plot to graph the data for the males

C. Looking at your plot, which data point(s) would be considered an outlier?

D. Re-calculate four summer values for the the males, this time excluding the outlier.

E. Summarize the effects of the outlier on the mean, median, mode, and the range.

F. In statistics, often you will be required to interpret your data. In a paragraph use the summary statistic to compare males and females

2. Categorical or Quantitative?

Determine if the variables listed below are quantitative or categorical

Variable	Categorical?	Quantitative
Time it takes to get to school		
Number of minors living in a household		
Hair color		
Temperature of a cup of coffee		
Teacher salaries		
Gender		
Smoking status		
Height		
Amount of oil spilled		
Age of oscar winners		
Type of depression medication		
Jelly Bean flavors		
Country of origin		
Type of meat		
Number of shoes owned		

3. Bar Charts and Pie Charts

In 1997 there were 92,353 deaths from accidents in the United States. Among these were 42,340 deaths from motor vehicle accidents, 11,858 from falls, 10,163 from poisoning, 4051 from drowning, and 3601 from fires. The rest were listed as "other" causes.

A. NEATLY create a well-labeled bar graph of the distribution of causes of accidental deaths. Be sure to include an "other causes" bar..
B. NEATLY create a well-labeled pie graph of the distribution of causes of accidental deaths. Be sure to include an "other causes" bar.

You can use technology, such as Microsoft Excel or Google spreadsheet to draw the graphs, if you wish

4. Box and Whiskers diagram

Here are the scores on the Survey of Study Habits and Attitudes (SSHA) for 18 first-year college women:

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

and for 20 first-year college men:

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

A. Compute numerical summaries for each gender.

Women	**Men**	**Men**
Mean		
Minimum		
First or lower quartile		
Median		
Third or upper		
Maximum		
Range		
IQR		

A. Using the minimum, Q1, Median, Q3, and Maximum from each gender, make parallel box plots to compare the distributions.

5. Regression

The USDA reported that in 1990 each person in the United States consumed an average of 133 pounds of natural sweeteners. They also claim this amount has decreased by about 0.6 pounds each year.

A. If 1990 could be considered "year 0", which of the above numbers represents the slope and which represents the y-intercept?

B. What is the equation of the line of best fit using the slope and y-intercept above?

C. Predict the average consumption of sweeteners per person for the year 2014.

6. Correlation

Hilary wonders if people of similar heights tend to date each other. She measures herself, her dormitory roommate, and the women in the adjoining rooms; then she measures the next man each woman dates. Here are the data (heights in inches):

Women: 66 64 66 65 70 65

Men: 72 68 70 68 74 69

A. Construct a scatter plot of the data.
B. Describe the association between the heights of the women and the men they date.

7. Probability

1. A lottery is to be held to select the student who will live in the deluxe room in a dormitory. There are 100 seniors, 150 juniors, and 200 sophomores who applied. Each senior's name is placed in the lottery 3 times; each junior's name, 2 times; and each sophomore's name, 1 time. What is the probability that a senior's name will be chosen?

A. $\frac{1}{8}$
B. $\frac{2}{7}$
C. $\frac{1}{2}$
D. $\frac{2}{9}$
E. $\frac{3}{8}$

2. Which of the following has a probability closest to 0.5?
A. The sun will rise tomorrow.
B. It will rain tomorrow.
C. You will see a dog with only three legs when you leave the room.
D. A fair die will come up with a score of 6 four times in a row.
E. There will be a plane crash somewhere in the world within the next five minutes.

3. If a coin is tossed twice, what is the probability that on the first toss the coin lands heads and on the second toss the coin lands tails?

A. 1/6
B. ¼
C. 1
D. 1/3
E. ½

4. If a coin is tossed twice what is the probability that it will land either heads both times or tails both times?

A. 1/8
B. 1/4
C. 1
D. 1/6
E. 1/2

5. Calculate the following probabilities and arrange them in order from least to greatest.

I. The probability that a fair die will produce an even number. _____
II. A random digit from 1 to 9 (inclusive) is chosen, with all digits being equally likely. The probability that when it's squared the answer will contain the digit 1. _____
III. The probability that a letter chosen from the alphabet will be a vowel. _____
IV. A random number between 1 and 20 (inclusive) is chosen. The probability that its square root will not be an integer. _____

ORDER: _____, _____, _____, _____