AP Statistics 2026-2027

Gentlemen-

Below is your summer assignment. I will not collect it, but we will have a quiz on its content within the first week of school. We have a lot of material to cover in advance of the AP exam in early May, and accelerating into the course when we return in the fall will allow us time to review the course material prior to the exam.

Assignment:

a) Purchase the textbook "The Practice of Statistics (for the AP exam)- 5th edition" by Starnes, Yates, Tabor & Moore. A used copy is totally fine. Alternatively, feel free to purchase a digital copy.
b) Read Chapter 1
c) Complete the questions that follow: "Chapter 1 practice questions- 1.1, 1.2, and 1.3", leveraging the answer key on the final pages to make sure you understand the answers.

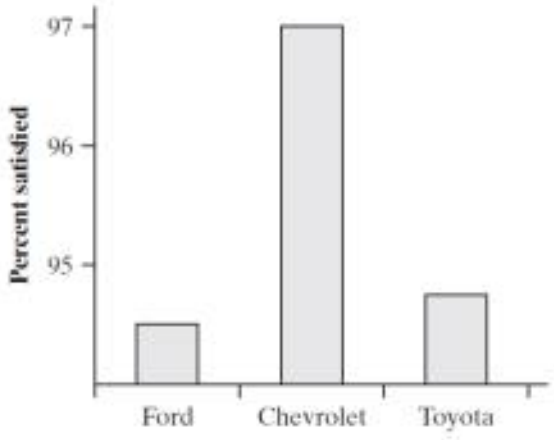
AP Statistics Quiz 1.1 Name:

1. Mr. Molesky observes a group of monkeys for 24 hours to learn about their behavior. He records how long they slept, how many bananas they ate, gender, age, and the specific breed of monkey.

(a) What are the individuals in this data set?

(b) Identify the variables that were recorded, and indicate whether each one is categorical, quantitative (discrete), or quantitative (continuous).

2. The following bar graph gives the percent of owners of three brands of trucks who are satisfied with their truck. What is wrong with the way information is presented in this graph?



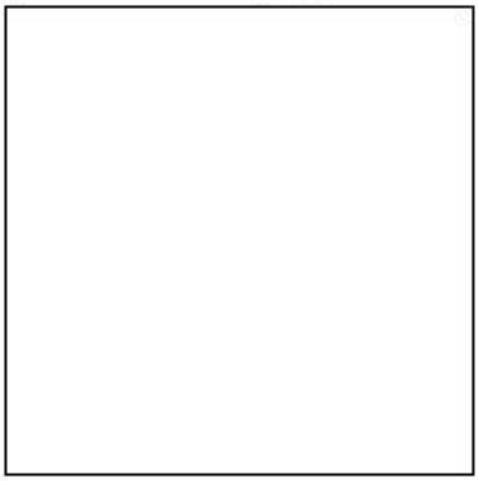
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3. A research study asked children which of four different emotions they associated with the color red. The response and gender of each child are given in the following table.

	Male	Female
Joy	28	61
Happiness	20	25
Love	40	80
Anger	18	60

(a) Find the distribution of emotion for each gender using relative frequencies.

(b) Make a segmented bar graph to compare the distributions in part (a).



(c) Describe what the graph in (b) reveals about the association between gender and emotion for the students in the sample.

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AP Statistics Quiz 1.2 Name:

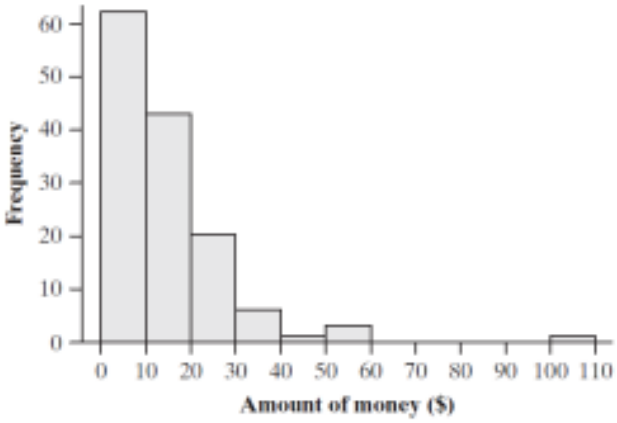
1. A random sample of 20 employees at a large company was selected. Here are the salaries (in thousands of dollars) for these employees during one year.

28	31	34	35	37	41	42	42	42	47
49	51	52	52	60	61	67	72	75	77

(a) Make a dotplot of these data.

(b) What percentage of the sample of employees have a salary of at least $60,000?

2. Professor Windley teaches a statistics class with 136 students. On the first day of class he records how much money each student has in his or her possession (in dollars) during the first class of the semester. The histogram displays the data. Describe the distribution.



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3. On August 7, 2007 Barry Bonds hit his 756th home run, breaking the all-time career home run record, formerly held by Hank Aaron. Does that make Bonds a better home run hitter than Aaron? Let's compare their annual home run production over their entire careers. A side-by-side stemplot is shown below.

Number of Home Runs Per Year

Bonds		Aaron
5	0	
9 6	1	0 2 3
8 6 5 5 4	2	0 4 6 7 9
7 7 4 4 3 3	3	0 2 4 4 8 9 9
9 6 6 5 5 2 0	4	0 0 4 4 4 4 5 7
	5	
	6	
3	7	

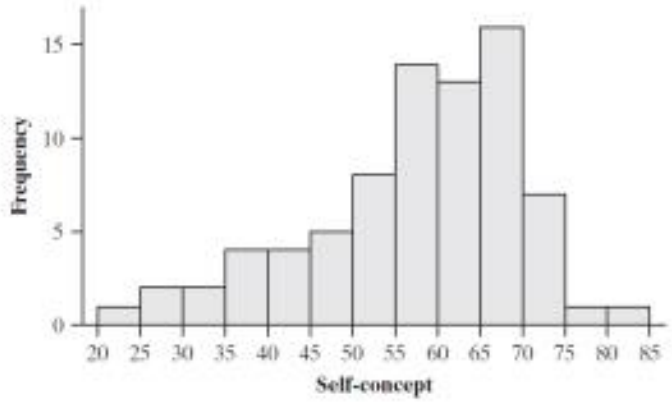
Key: 1|4 = 14 home runs

Use the plot to write a few sentences discussing the similarities and differences in the distributions of home runs per year for Bonds and Aaron.

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AP Statistics Quiz 1.3 Name:

1. A group of 78 third-grade students in a Midwestern elementary school took a "self-concept" test that measured how well they felt about themselves. Higher scores indicate more positive self-concepts. The lowest self-concept scores were 20, 26, 27, 31, and 32. A histogram and some summary statistics from Minitab for these students' self-concept scores are given below.



Variable	n	Mean	StDev	Minimum	Q_1	Median	Q_3	Maximum
SelfConc	78	56.85	12.35	20	50	59	65	84

(a) Are there any outliers? Justify your answer.

(b) Draw a boxplot of this distribution.

(c) One of the students had a self-concept score of 32. If this score had been accidently recorded as 22, what effect would this have had on the value of the mean and the median? Justify your answer.

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2. Five students reported the amount of time (in minutes) they spent studying for an AP Statistics test the night before the test. The mean of the reported times is 45 minutes and the standard deviation is 10 minutes.

(a) Interpret the standard deviation in context.

(b) A 6^{th} student reported that they studied for 50 minutes. How would the addition of this student to the data set affect the value of the mean and the standard deviation? Explain your answers.

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Chapter 1 Solutions

Quiz 1.1 Solutions

1. (a) The individuals are the monkeys.

(b) The variables recorded were how long they slept (quantitative continuous), how many bananas they ate (quantitative discrete), gender (categorical), age (quantitative continuous), and the specific breed of monkey (categorical).

2. There are only small differences in the satisfaction of owners for the three brands. By starting the vertical scale at 94% instead of 0%, it looks like the percent of people who drive a Chevrolet are 4 to 5 times more likely to be satisfied than those who drive a Ford or a Toyota. In truth, the percent of those who drive a Chevrolet that are satisfied (97%) is only slightly higher than the percent of Ford owners (about 94.5%) and Toyota owners (about 94.75%) who are satisfied.

3. (a) The distribution of emotion for Males is: Joy: 28/106 = 26.4%, Happiness: 20/106 = 18.9%, 40/106 = 37.7%, and Anger: 18/106 = 17.0%.
The distribution of emotion for Females is: Joy: 61/226 = 27.0%, Happiness: 25/226 = 11.1%, Love: 80/226 = 35.4%, and Anger: 60/226 = 26.5%.

(b) A segmented bar graph is given here.



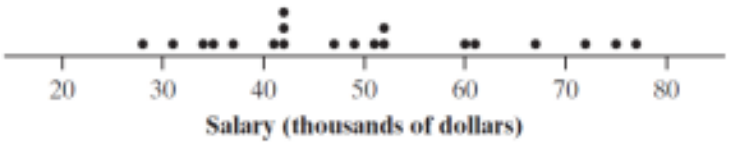
(c) There is an association between gender and the emotion that the individuals in the sample associate with the color red. Females were less likely to associate the color red with happiness and love and were more likely to associate it with anger than males.

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Quiz 1.2 Solutions

1. (a) A dotplot is given here.



(b) Six of the 20 employees in the sample have a salary of at least \$60,000. 6/20 = 0.3 = 30%.

2. The distribution of the amount of money the students had in their possession is skewed to the right with one upper outlier (just over \$100). The median amount of money is between \$10-\$20 and the amount of money the students had in their possession varied from \$0 to about \$110.

3. The distribution of number of home runs hit for both players is skewed to the left. The year that Bonds hit 73 home runs is clearly an outlier. There are no obvious outliers in Aaron's distribution. The median for both distributions is the same, 34 home runs. The distribution of number of home runs hit is less variable for Aaron than Bonds. The number of home runs hit per year by Bonds vary from 5 to 73. The number of home runs hit per year by Aaron vary from 10 to 47.

Quiz 1.3 Solutions

1. (a) The IQR is 65 – 50 = 15. Any observation above $Q_3 + 1.5IQR = 65 + 1.5(15) = 87.5$ or below $Q_1 - 1.5IQR = 50 - 1.5(15) = 27.5$ is considered an outlier. Because the maximum of 84 is less than 87.5, there are no upper outliers. The values 22, 26, and 27 are all below the lower boundary so there are three lower outliers.
(b) The boxplot is given here.



(c) If the value 32 was mistakenly recorded as 22, the value of the mean would decrease and the value of the median would remain the same. The value of 22 is further below the mean than the value of 32, so this mistake would decrease the mean. The median value (59) remains unchanged as this mistake does not affect the middle value of the data set.

2. (a) The number of minutes the students spent studying typically varies about 10 minutes from the mean of 45 minutes.
(b) If the 6th student's reported number of minutes spent studying (50) is added to the data set the mean would increase and the standard deviation would decrease. The value, 50, is above the current mean, so it would increase the value of the mean. It is also closer to the mean (only 5 minutes away the mean) than the other values in the data set (which typically are about 10 minutes away from the mean), so it decreases spread about the mean, which decreases the value of the standard deviation.

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