

Math 3003

Data Analysis/Statistics Basics Practice Test/Study Guide

Name _____

1. Sally O. Student has made the following scores on her portfolio assignments so far in Math 1234 during this semester. The grades below include journal entries, quizzes, and practice tests.

100	92	93	85	82	73	95	68	95	92	84	95
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For this given data set, find each numerical statistic below. Show work to support each solution.

(a) Mean (Round to the nearest tenth.) _____

(b) Mode(s). _____

(c) Median (or second quartile) _____

(d) First quartile (Q1) _____

(e) Third quartile (Q3) _____

(f) Range _____

(i) Sample standard deviation (Round to the nearest tenth.)

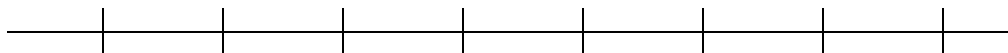
(g) Midrange _____

(h) Interquartile range (IQR) _____

2. The prices of 14 different randomly selected 35-mm compact cameras are as follows:

\$189, \$225, \$129, \$175, \$299, \$140, \$215, \$299, \$89, \$99, \$149, \$219, \$120, and \$144.

Construct a box plot, showing the process. Clearly label each statistic in the 5-number summary. Use the number line to draw the box plot to scale.



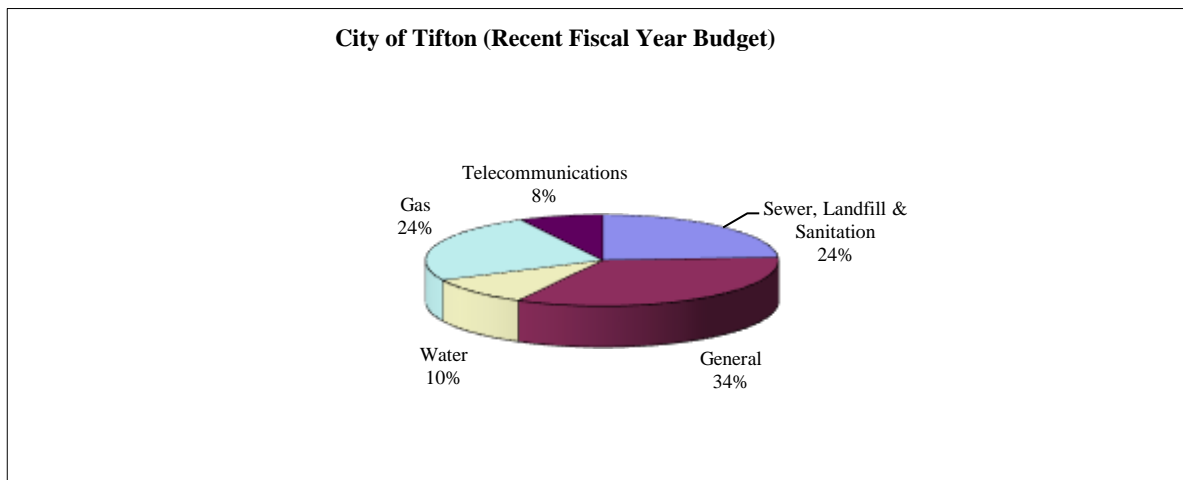
3. The amount of protein (in grams) for a variety of fast-food sandwiches is reported in the chart below.
- (a) Use the interquartile range approach ($Q_1 - 1.5 \times IQR$, $Q_3 + 1.5 \times IQR$) to find whether any of the amounts are outliers. Show your reasoning, and list any outliers.

23	25	20	23	44	28	35	24	29	29
25	15	18	36	19	32	20	16	34	16

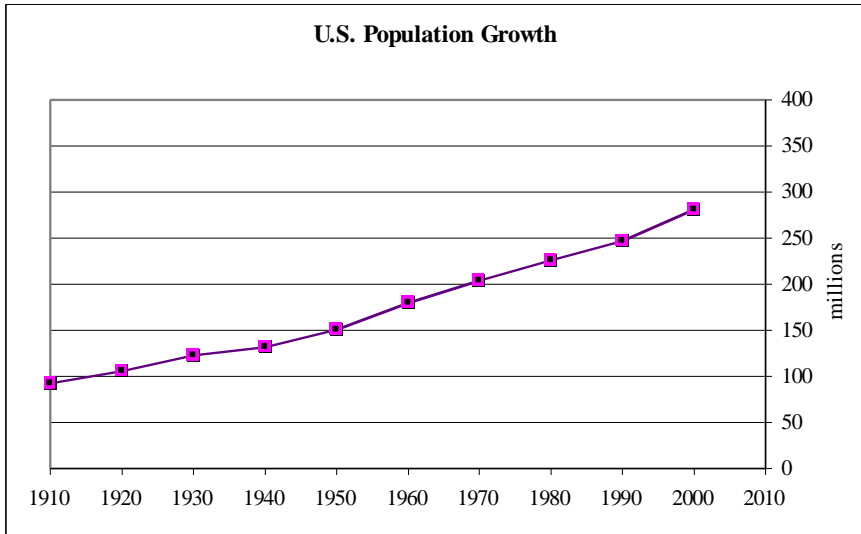
- (b) Make a stem-and-leaf plot for this data. Include a key and title.

4. In a recent year, City of Tifton Operations included 7 general funds, 6 of which are largely self-supporting. The total budget is approximately \$27.2 million for this year.

- (a) What percent of the budget is allocated for gas or water?
- (b) Approximately how much money is budgeted for telecommunications? Round to the nearest hundred thousand dollars.



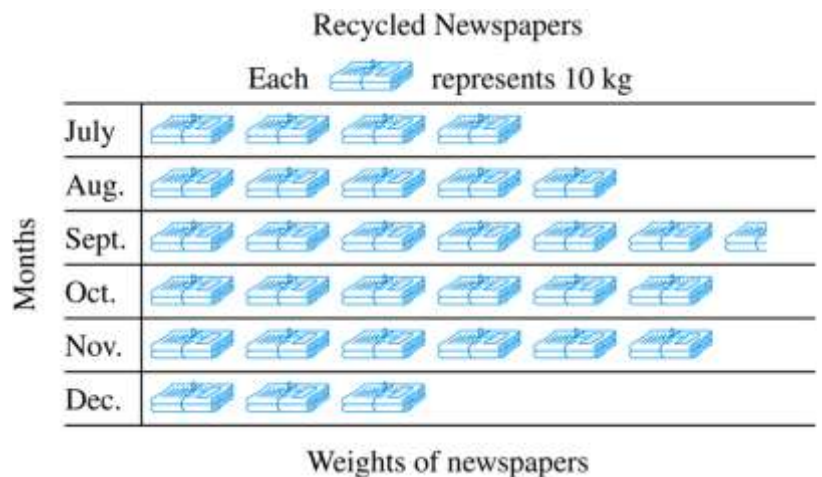
5. Refer to the following broken line graph. [Source: U.S. Census Bureau]



- (a) Describe in a sentence the general trend in the graph.
- (b) Choose the range of years that includes the year when the U.S. population first went over 250 million.
- 1920-1940 1940-1960 1960-1980 1980-2000
- (c) During what year were you born? _____ Use the graph to estimate the U.S. population in the year of your birth.

6. Refer to the pictograph.

- (a) How much more was recycled in September than in December?
- (b) Find the average weight recycled over these 6 months.



7. The following data represents high temperatures (to the nearest degree Fahrenheit) in Tahiti for the 31 days of January, 2017.

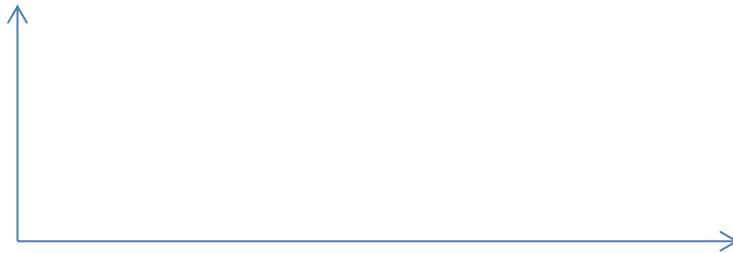
76	74	78	74	81	70	73
82	77	77	72	75	73	76
83	78	76	72	76	81	77
80	75	80	81	74	78	85
76	77	78				



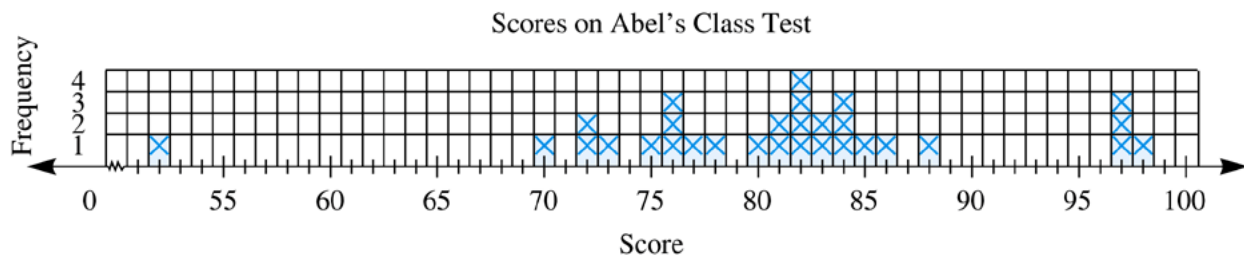
- (a) Make a grouped frequency distribution with a first class of 70 – 74 °F. Include relative frequencies, rounding to the nearest percent

Temperatures (°F)	# of days	%
70 - 74		

- (b) Construct a histogram for this data with boundaries for temperatures on the horizontal axis. Place either frequencies or relative frequencies on the vertical axis.



8. Refer to the dot plot.

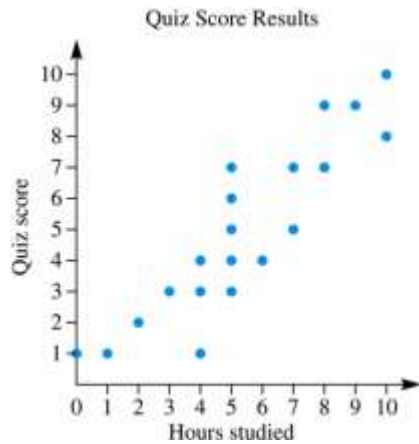


- (a) List the data in ascending order.
- (b) Use the interquartile range approach ($Q_1 - 1.5 \times IQR$, $Q_3 + 1.5 \times IQR$) to find whether any of the amounts are outliers. Show your reasoning, and list any outliers.

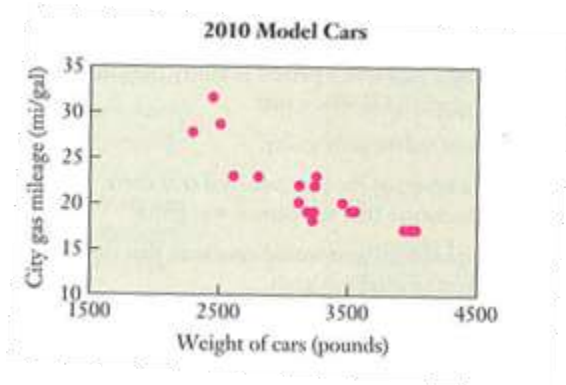
(c) Make a (modified) box plot for this class test data.

9. Describe the following scatterplots in terms of the association between variables.




(a)



(b)



10. Angela is selling hats for the Mathematics Club at her school. This picture shows the number of hats Angela sold during the first three weeks.

Week 1	
Week 2	
Week 3	
Week 4	?

How many hats must Angela sell in Week 4 so that the mean or average number of hats sold is 7? Show how you found your answer.