

City Semester
Take Home Quiz/Test
Show all work for full credit.

Name:_____

1. Please write out the following statement and sign your name to it as testament to its truth. ‘I have worked on this assignment for at most 75 minutes and I have neither given nor received any unauthorized help on this work’

2. Identify the following variables as categorical or numerical:
 - (a) Number of students in a class of 35 that turn in a paper before the due date
 - (b) Amount of fluid ounces dispensed by a machine used to fill soda bottles
 - (c) Gender of the next baby born at a particular hospital
 - (d) State of birth for someone born in the U.S.

3. 🟡 Use the data collection for problem 3 to answer the following questions.
 - (a) Construct a dotplot in fathom of the 14 observations of number of reported violent crimes reported in 2005. Which schools stand out from the others?

 - (b) It may be a better measure to find out the number of violent crimes per 1000 students as the schools have very different enrollments. Create a new column by taking number of reported violent crimes, dividing by enrollment, and multiplying by 1000. Make a new dotplot of this measure. Do the same schools stand out as in part a? Explain.

- (c) Based upon parts a and b, write a few sentences commenting on reported violent crime at Florida universities and colleges in 2005.

4. The amount of aluminum contamination (in ppm) in plastic was determined for a sample of 26 plastic specimens resulting in the following data:

30	30	60	63	70	79	87	90	101
102	115	118	119	119	120	125	140	145
172	182	183	191	222	244	291	511	

- (a) Construct a boxplot that shows outliers. Sketch the boxplot here, labeling important points.

- (b) Explain how the outliers were determined, and comment on the interesting features of the boxplot.

5. 🟡 Use the data collection for problem 5 to answer the following questions.

- (a) For the data set that gives the percentage of students at each school who have received all required immunizations, calculate the five number summary, \bar{X} and σ .

- (b) Knowing that to preserve ‘herd immunity’ requires a vaccination rate of at least 94% for measles, which statistic would be more headline grabbing reporting: the median or the mean? Which statistic would be a more accurate measure of the center of the distribution? Explain.

- (c) Is this distribution symmetric, skew left, or skew right? Explain.

6. Answer the following given the data set $\{1, 1, 2, 3, 3, 4, 5, 6, 20\}$.

- (a) For the given data set find \bar{X} and the median. Show any relevant calculations.
- (b) For the given data set find the IQR and the sample standard deviation. Show any relevant calculations
- (c) Explain the role of outliers in deciding which is a better measure of spread: the IQR or the standard deviation for this data set.

7. 🟡 Use the data collection for question 7 to answer the following questions.
- (a) Generate a scatterplot of the data. Choose your x -axis data set wisely. Describe the major features of the scatterplot.
 - (b) Generate the least squares regression line. What is its equation? Is this line a good fit for the data? What is your evidence?
 - (c) Show (write out) the calculation of the residual for the least squares regression line for the year 2008.
 - (d) What does your model predict NY's CPI will be in 2017? Show your calculation.

Remember: Save your fathom file with your name and submit it along with your test.