Data Analysis Take Home Test

1. Ariel has a total of 320 points on all four of her exams. If these points are shared equally among the four exams, the result is 80 points per project—which is Ariel's mean score.

    a. What would Ariel's mean score be if she had a total of 372 points for the four exams?

    b. Give four possible exam scores that would result in this mean score.

    c. What is the range of the scores for your answer b?

2. Find the Mean Absolute Deviation of the data in the table below.

Digital Camera Prices ($)			
140	125	190	156
212	178	196	224

    a. What is the mean of the data in the table?

    b. What is the mean absolute deviation of the data?

3. Five good friends have the following numbers of basketball cards:

    Justin: 352   Alex: 347   Hannah: 265   Ashley: 261   Tyler: 325

    a. What is the range of number cards of the five friends?

    b. The five friends decided to share their cards equally. How many cards per friend will this be? Explain.

c. The five friends forgot about another friend, Samantha, when cards were shared. Samantha has 261 cards, the same number of cards as Ashley. If Samantha's cards are included with the others' cards and shared equally among the six friends, will the first five friends receive less, the same as, or more than they did before Samantha's cards were included?

4. The following data are the number of hours of homework done by several students on a Monday night: [0.5, 0.5, 1, 1, 1, 1, 2, 3]. If you replaced data from a student who did 0.5 hours of homework with one who did 2 hours of homework:

    a. What is the mean of the original data set [0.5, 0.5, 1, 1, 1, 1, 2, 3]?

    b. What is the median of the original data set [0.5, 0.5, 1, 1, 1, 1, 2, 3]?

    c. If the data is replaced (2 hours replaces one 0.5 hour as the question states), what will the new mean be? Explain why it changed.

    d. If the data is replaced (2 hours replaces one 0.5 hour as the question states), what will the new median be? Explain why it changed.

5. Using the data set below answer the following questions.

    24, 15, 18, 20, 18, 22, 24, 26, 18, 26, 24

    a. What is the upper quartile?

    b. What is the maximum?

    c. What is the lower quartile?

    d. What is the minimum?

    e. What is the interquartile range?

    f. What percent of the data is between 15 and 24?

g. What percent of the data is between 18 and 22?

h. What is the range?

6. Trinity's scores on the first 4 tests were 97, 92, 76, and 89.

   a. What is the minimum score Trinity needs to make on the fifth test so that her mean test score is at least 85?

   b. Can Trinity score well enough so that her mean score is 90 or above?

   c. If Trinity scores 100 on the fifth test, what is her median test score?

7. The table shows the amount of money raised by homerooms for two grade levels at a middle school. Find the mean absolute deviation for each set of data.

Money Raised ($)											
Sixth Grade						Seventh Grade					
88	116	94	108	112	124	144	91	97	122	128	132

   a. What is the mean of the sixth grade data?

   b. What is the Mean Absolute Deviation of the sixth grade data?

   c. What is the mean of the seventh grade data?

   d. What is the Mean Absolute Deviation of the seventh grade data?

8. Using the information given in the table below about the points that two basketball players scored in each of the games they played this year:

Player A	30	26	21	28	24	28	25	26	30	22
Player B	16	18	15	18	22	14	16	23	18	20

    a. What is the mean number of points scored for **each** player? Find the difference in the means.

    b. What is the Mean Absolute Deviation for **each** player?
        Player A: _____
        Player B: _____

    c. How many times greater is the difference in the means than the Mean Absolute Deviation for each player?

9. Each student in a class has taken five tests. The teacher allows the students to pick the mean, median, or mode of each set of scores to be their average. Which measure of center should this student pick in order to have the highest average? Explain in your own words why this would be the best choice.

$$100, 87, 81, 23, 19$$

10. Using the line plot below, what is the interquartile range?