Statistics Unit 1 quiz 3: Resistant and non resistant measures, Box plots that show outliers, Comparing two distributions

Name _____ Date _____ Period _____

7 questions, 21 points

1. Ava's class collects bottles and cans for recycling. In eight weeks it collected 14, 11, 16, 12, 15, 13, 17, 10 kg. In the ninth week the school cleared out its storeroom, and the class collected 90 kg.

Find the mean and the median of all nine weeks. Ava's teacher wants to tell the principal how much a usual week brings in. Which of the two should she use? Explain. (3 points)

2. The eight staff at a summer day camp earn these hourly pay rates, in dollars: the seven counselors earn 15, 16, 15, 17, 16, 18, 15, and the camp director earns 48. (3 points)

(a) Find the mean and the median hourly pay of the eight staff.

(b) The camp's website will give one number for what a staff member usually earns per hour. Which of the two should it use?

(c) Each of the eight staff works 30 hours this week. Which of the two centers tells the camp the total pay for the week, and what is that total?

3. The members of a puzzle club timed how many minutes they took to finish one crossword. The only numbers kept were the five-number summary: minimum 12, $Q_1 = 40$, median 45, $Q_3 = 50$, maximum 95. (3 points)

(a) Find the fences.

(b) Is the modified box plot sure to have a dot below the box? Above it? Explain.

(c) Can you tell where its upper whisker ends? Explain.

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4. Yuna bought random samples of 11 small boxes of raisins of each of two brands and counted the raisins in each box.

Brand A: 28, 29, 30, 30, 31, 31, 31, 32, 32, 33, 34

Brand B: 24, 26, 27, 28, 29, 30, 30, 31, 33, 35, 37 (3 points)

(a) Find the median and the range of each brand.

(b) Write one comparison sentence about center and one about spread.

(c) How many boxes of each brand hold fewer than 28 raisins? What does the difference in spread mean for a buyer who wants at least 28 raisins?

5. A community yoga class meets in the park every Saturday. The numbers of people at the last six classes were 40, 44, 36, 4, 42, 38. On the day only 4 came, the class was moved indoors at the last minute. (3 points)

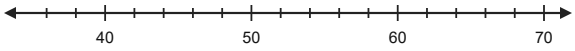
(a) Find the mean and the MAD of all six classes.

(b) Find the mean and the MAD of the five classes left when the day with 4 people is left out.

(c) How many times larger is the MAD with that day than without it?

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6. A farm weighed 12 eggs, in grams: 38, 52, 54, 55, 57, 58, 59, 60, 61, 62, 63, 66. Draw the modified box plot of the weights on a number line from 35 to 70, and show the work that places each part of it. (3 points)



7. For each pair of samples, say which measures of center and spread Hiro should use to compare the two groups, and why. (3 points)

(a) The lengths of random samples of 25 cucumbers from each of two farms. Both distributions are roughly symmetric with one peak and no outliers.

(b) The minutes that random samples of 30 shoppers spent in two shops. Shop 1's times are roughly symmetric. Shop 2's times are skewed right, with two shoppers far above all the rest.

(c) The prices of random samples of 20 bikes at two shops. Shop C's prices are roughly symmetric around 300 dollars. Shop D's prices form two clusters, children's bikes from 80 to 150 dollars and adult bikes from 350 to 600 dollars, with no prices in between.

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