Math 153 - Quiz 4

Name key

September 20, 2018

Score _____

Show all work to receive full credit. Supply explanations when necessary. This quiz is worth 5 points. YOU MUST WORK INDIVIDUALLY.

1. (3 points) At a certain location, Verizon data speeds (in Mbps) were collected at various times throughout the day. Here are the data:

   13.5, 10.2, 21.1, 15.1

   (a) Find the (arithmetic) mean and the median.

   10.2, 13.5, 15.1, 21.1

   $\bar{x} = \frac{13.5 + 10.2 + 21.1 + 15.1}{4}$

   $= \frac{59.9}{4} = 14.975$

   $\text{MEDIAN} = \frac{13.5 + 15.1}{2}$

   $= \frac{28.6}{2} = 14.3$

   (b) Suppose a fifth value of 142 is inserted into the collection of data. Find the mean and median of the new data set.

   10.2, 13.5, 15.1, 21.1, 142

   $\bar{x} = \frac{59.9 + 142}{5}$

   $= 40.38$

   MEDIAN = 15.1

   (c) Based on your results, explain why the mean is NOT a resistant measure of center.

   THE ADDITION OF A SINGLE EXTREME VALUE (142) CAUSED THE MEAN TO INCREASE A LOT.

   WE CONCLUDE THAT THE MEAN IS SENSITIVE TO EXTREME VALUES.

2. (2 points) Five pulse rates are measured in beats per minute. Four of the pulse rates are 82, 78, 56, and 84. If the mean of the five pulse rates is 78.0, find the missing pulse rate.

   $\frac{82 + 78 + 56 + 84 + ?}{5} = 78.0$

   $300 + ? = 5 \times 78.0$

   $300 + ? = 390$

   THE MISSING PULSE RATE IS 90.