

MA145 Midterm Exam (SAMPLE)

Name:

1. PART 1

1) Which of the following measures is/are considered resistant to outliers?

- the range the standard deviation
 the variance the interquartile range

2) The following table is part of the output from the *Rank and Percentile* function of a spreadsheet. Which of the four choices represents the correct value of the 85th percentile for this data?

Point	Column 1	Rank	Percent
30	3.68	22	86.70%
103	3.57	23	86.10%
139	3.54	24	85.50%
86	3.49	25	84.90%
46	3.48	26	84.20%

- $(3.54+3.49)/2$ $(3.57+3.54)/2$
 $(3.57+3.49)/2$ 3.54

3) A researcher calculates the median for a data set as 24.1 and the mean as 45.3. Which of the following terms best describes the shape of the distribution of the data?

- skewed left skewed right
 not skewed symmetric

4) For the data in the previous problem, which among the following measures would be the best choice for reporting central tendency?

- the mean $(Q_3 - Q_1)$
 the 68th percentile P_{68} the median

5) A news program asks viewers to call in their response to a survey question. This would best be described as a:

- convenience sample stratified sample
 cluster sample systematic sample

6) A set of data has a value of 100 for the first quartile Q_1 and 140 for the third quartile Q_3 . The values of the upper and lower fences are:

180 and 40

190 and 50

200 and 50

200 and 40

7) A set of data has the following values:

{1, 1, 2, 3, 4, 4, 5, 5, 6, 6, 6, 7, 8, 8, 9, 10, 10, 13, 15, 15}. The mode is:

8

7

6

Does not exist

8) A data set has $Q_1 = 20$ and $Q_3 = 24$. Which, if any, of the values {29, 14, 31, 19} would be considered outliers?

None of them

Only 31

Only 14

14 and 31

Match each entry in the left column with the entry that *best* fits from the right column.

- | | |
|--|--|
| <input type="checkbox"/> placebo | a) $Q_3 - Q_1$ |
| <input type="checkbox"/> cluster | b) a sample of collections or groups of individuals |
| <input type="checkbox"/> response variable | c) data having the median much smaller than the mean |
| <input type="checkbox"/> Z-score | d) $Q_1 - 1.5 \cdot IQR$ |
| <input type="checkbox"/> frame | e) (largest data value) - (smallest data value) |
| <input type="checkbox"/> systematic | f) a sample of every 9 th customer at a store |
| <input type="checkbox"/> interquartile range | g) number of standard deviations away from the mean |
| <input type="checkbox"/> outlier | h) $Q_3 + 1.5 \cdot IQR$ |
| <input type="checkbox"/> skewed right | i) data having the median much greater than the mean |
| <input type="checkbox"/> skewed left | j) list of all individuals in the population under study |
| <input type="checkbox"/> upper fence | k) an innocuous treatment such as a sugar pill |
| <input type="checkbox"/> lower fence | l) an extreme observation |
| <input type="checkbox"/> range | m) variable of interest in an experiment |