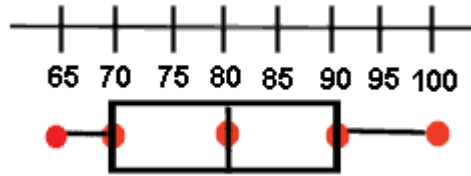**Algebra 1B**
Practice: Box Plot and Outlier Rule

Name _____

Block _____ Date _____

The box-and-whisker plot below shows the distribution of tests scores in Mrs. Uebelhoer's Algebra 2 class.

65 70 75 80 85 90 95 100

1. Determine the median of the box-and-whisker plot.

2. What percentage of students scored between 90 and 100?

3. What percentage of students scored between 70 and 90?

Joe interviewed the cross country team at his high school to find out how many miles per week they run. The following list is the data Joe collected.

   15, 25, 33, 47, 52, 35, 8, 55, 42, 29, 45, 54, 41, 37, 48, 56, 45, 40

4. Rewrite the list of data in order from least to greatest.

5. Determine the 5-number summary (minimum, lower quartile, median, upper quartile, maximum) of this data.

6. Make a box-and-whisker plot for the data set.

7. How many miles do the bottom 75% of runners run per week?

8. Use the 1.5 IQR rule to determine if there are outliers.

9. *If there are outliers:*
   How would the center (mean, median, mode), spread (range, standard deviation), and shape (symmetry), change if there were not outliers?

   If there are not outliers:
   How would the center (mean, median, mode), spread (range, standard deviation), and shape (symmetry), change if there were outliers?

The parallel box-and-whisker plot below shows average monthly rainfall for Miami and New Orleans.

10. a. Which city shows a greater range in average monthly rainfall?

    b. Explain how the parallel box-and-whisker plot makes it easy to compare the ranges.

Average Monthly Rainfall (millimeters)

20 40 60 80 100 120 140 160 180 200 220

Miami, Fla.
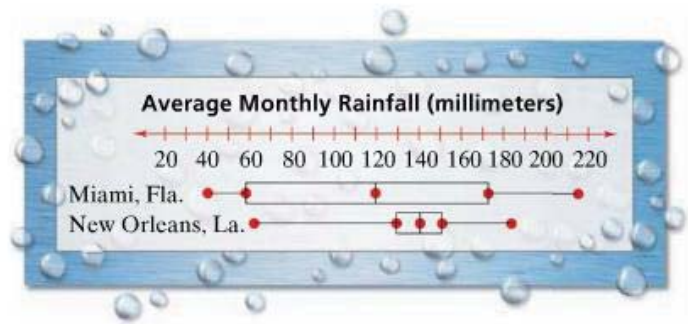
New Orleans, La.

11. In Miami, what percentage of rainfall was between 60 and 216 millimeters?

12. In New Orleans, what percentage of rainfall was between 61 and 130 millimeters?

Mrs. Hagan measured the height, in inches, of all the girls in her PE class. She recorded her results in the following list.

63, 60, 67, 62, 58, 63, 68, 59, 62, 65, 56, 63, 59, 62, 58

13. Determine the 5-number summary and make a box-and-whisker plot for the data set.

14. Between what heights are the middle 50% of the girls in Mrs. Hagan's PE class?

15. Use the 1.5 IQR rule to determine if there are outliers.

16. *If there are outliers:*
    How would the center (mean, median, mode), spread (range, standard deviation), and shape (symmetry), change if there were not outliers?

    If there are not outliers:
    How would the center (mean, median, mode), spread (range, standard deviation), and shape (symmetry), change if there were outliers?