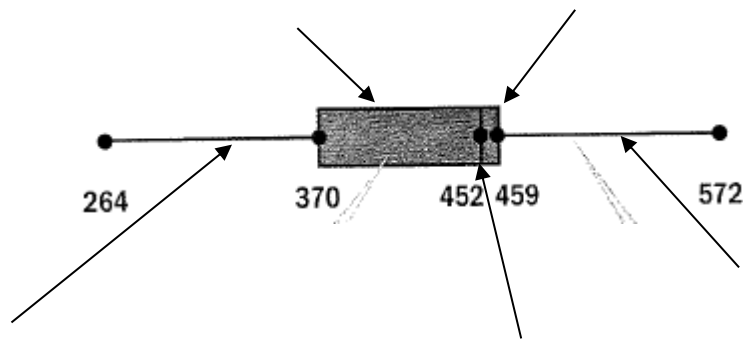


## 7.2 Notes – Box-and-Whisker Plots

- I CAN create a box and whisker plot
- I CAN interpret a box and whisker plot

A **box and whisker plot** is a data display that organizes data values into \_\_\_\_\_ groups.

**INTERPRETING Box and Whisker Plots** - A box and whisker plot separates data into FOUR sections...The two parts of the box and two whiskers. All four sections contain about the same number of data values.



The lengths of the sections tell you how spread out the data are.

*Definitions:* **Lower Quartile** - The \_\_\_\_\_ of the lower half

**Upper Quartile** - The MEDIAN of the \_\_\_\_\_ half

**Lower Extreme** - The \_\_\_\_\_ data value

**Upper Extreme** - The greatest \_\_\_\_\_ value

### ***STEPS FOR CREATING a BOX AND WHISKER PLOT:***

1. Order your data from least to greatest
2. Find the median of your data
3. Find the quartiles of your data (the median of the upper and lower half)
4. Find the extremes of your data (the least and greatest values)
5. Plot the median, quartiles, and extremes below a number line (**USE A RULER TO MAKE SURE YOUR NUMBER LINE "TICK MARKS" ARE EVENLY SPACED!!**)
6. Draw the box and the whiskers



**WHEN a DATA SET HAS an ODD NUMBER OF VALUES, DO NOT INCLUDE THE MEDIAN IN EITHER HALF OF THE DATA WHEN DETERMINING THE QUARTILES.**

Example: Create a box and whisker plot using this data: 7, 19, 6, 12, 5, 17, 6, 13

1. →                          5          6          6          **7**          **12**          13          17          19

2. →    Median =  $7+12=19 / 2 = 9.5$

3. →                          5          6          6          7          **9.5**          12          13          17          19  
 Lower quartile=    Upper quartile=

4. →                          Lower extreme = \_\_\_\_\_                          Upper extreme = \_\_\_\_\_



Create a box and whisker plot using this data: 14, 6, 13, 17, 1, 12, 9, 18. Show all 4 steps and work neatly below.

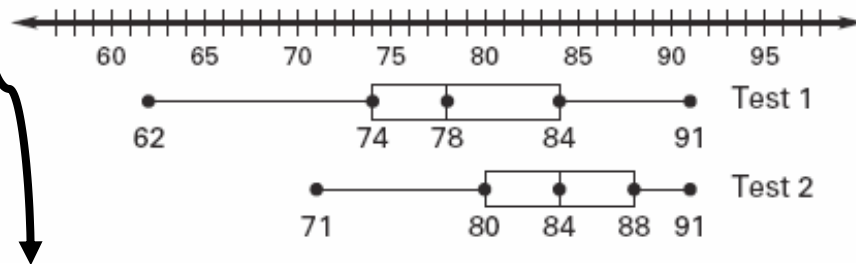


Create a box and whisker plot using this data: 77, 99, 112, 85, 117, 68, 63. Show all 4 steps and work neatly below.



The box-and-whisker plots below show a class' test scores for two tests. What conclusions can you make?

THESE ARE ALL THE DIFFERENT THINGS YOU CAN WRITE ABOUT WHEN IT ASKS YOU TO COMPARE THIS TYPE OF DATA DISPLAY.



- The \_\_\_\_\_ are the same for both tests.
- The median for the second test is \_\_\_\_\_ than the median for the first test.
- The \_\_\_\_\_ for the first test is the same as the \_\_\_\_\_ for the second test.
- The scores for the \_\_\_\_\_ are more spread out than the scores for the \_\_\_\_\_.
- Both **range** ( $91 - 62 = \underline{\quad}$ ) and the **interquartile range** ( $84 - 74 = \underline{\quad}$ ) of the first test are \_\_\_\_\_ than the **range** ( $91 - 71 = \underline{\quad}$ ) and the **interquartile range** ( $88 - 80 = \underline{\quad}$ ) of the second test.

Inner quartile range is \_\_\_\_\_

## 7.2 HW

1. For the following data, calculate the desired information. Then, create box-and-whisker plot

19, 27, 19, 24, 21, 20, 23, 29, 25, 26, 33

(Hint: Order the numbers \_\_\_\_\_)

Median:

Lower Quartile:

Upper Quartile:

Lower Extreme:

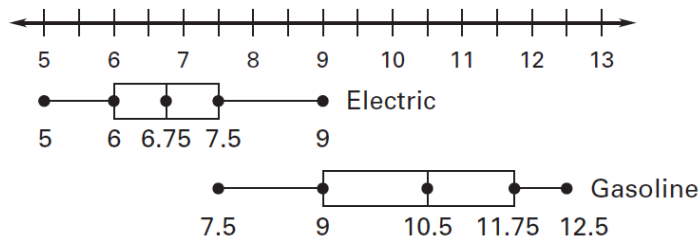
Upper Extreme:

Range:

Interquartile Range:



2. The box-and-whisker plots show the weights of electric handheld power blowers and gasoline handheld power blowers.



- a) **Compare** the median, range, and interquartile range for the two types of blowers

Continued from #2 on front.

b) About what percent of electric blowers are less than 7.5 pounds?

c) About what percent of gasoline blowers are more than 10.5 pounds?

d) Which type of blower would you say is the "lighter" blower? Explain.

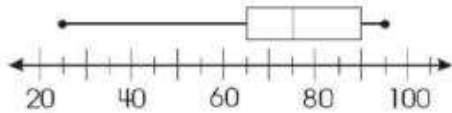
3. Use the following information: An **outlier** is a data value whose distance from the upper or lower quartile is more than 1.5 times the interquartile range.

a) Make a box-and-whisker plot for the following data (snowfall, in inches, of the top ten snowiest cities in the U.S. in a recent year): 100, 129, 105, 97, 112, 103, 156, 110, 117, 98



b) Determine if there are any outliers in the snowfall data set. Explain how you know.

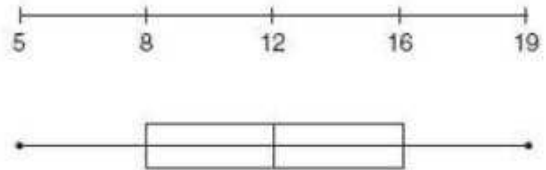
4. Colby graphed some data as shown in this box-and-whisker plot.



Which statement is true about Colby's data?

- A. The range of the data is 25.
- B. One-half of the data are below 65.
- C. The median of the data is 60.
- D. Three-fourths of the data are below 90.

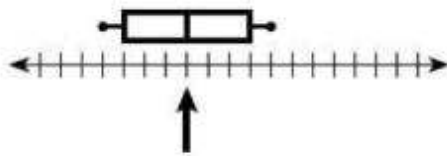
5. The following data represent the number of years different students in a certain group have gone to school together: 12, 5, 8, 16, 15, 9, 19. These data are shown on the box-and-whisker plot below.



6. The number of pages Jane read in a book each day for one week are listed below.

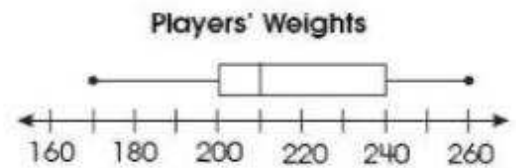
{12, 18, 19, 11, 12, 15, 18}

Below is the box-and-whisker plot of this data. To which number is the arrow most likely pointing?



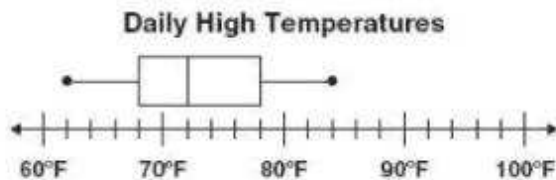
- A 11
- B 12
- C 15
- D 18

7. The box-and-whisker plot shown represents the weights, in pounds, of players on a football team.



What is the median weight of the football players?

8. The box-and-whisker plot below represents the daily high temperatures at a beach in April.



Explain what the box and whisker plot says. See the last example on your notes if you are stuck. You should have AT LEAST 4 bullet points to say about this.