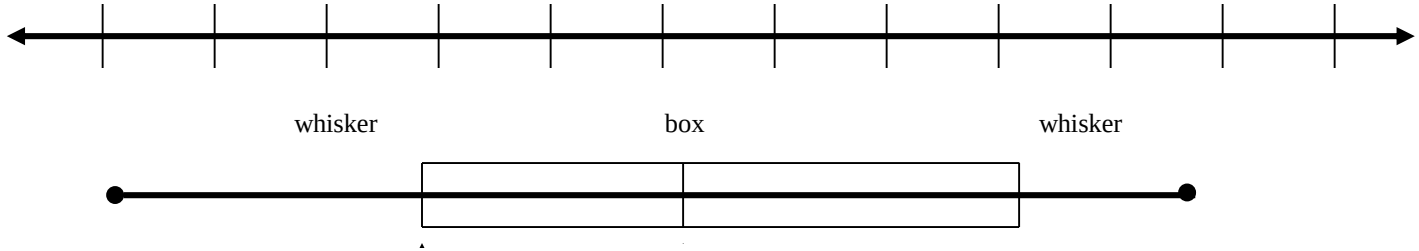
10.7 Part 2

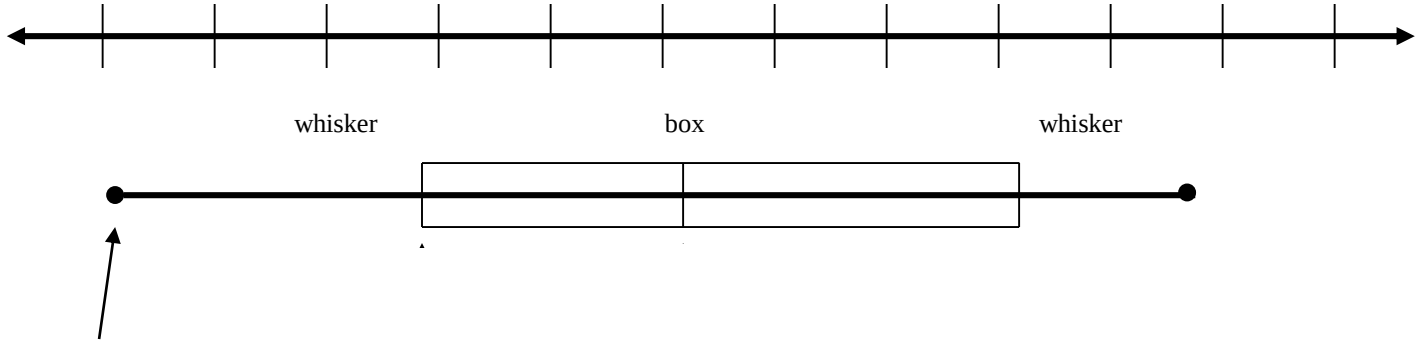
- Box-and-Whisker Plots- display how the data is distributed along a number line

- Box-and-Whisker Plots- divide the data into four quartiles.

Box and Whisker Plots

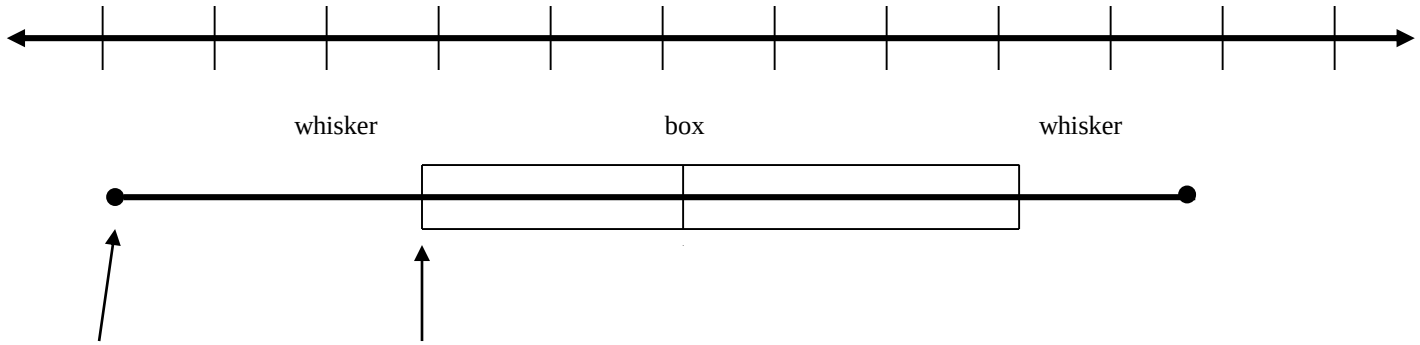


Box and Whisker Plots



Minimum Value

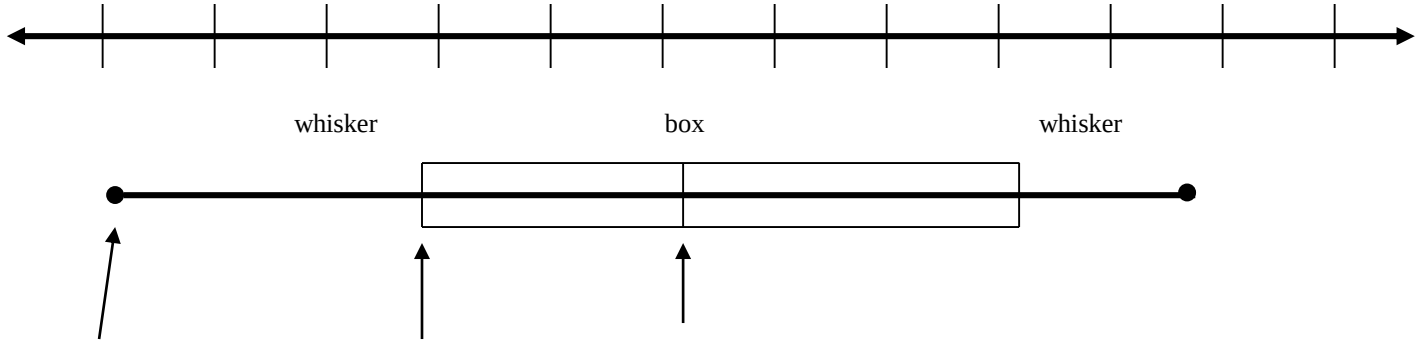
Box and Whisker Plots



Minimum Value

1st Q.

Box and Whisker Plots

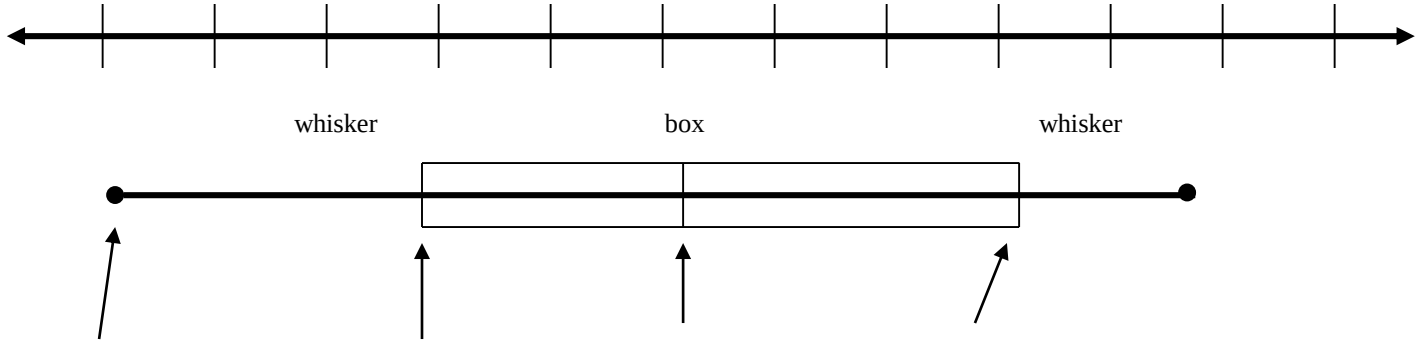


Minimum Value

1st Q.

Median
2nd Q.

Box and Whisker Plots



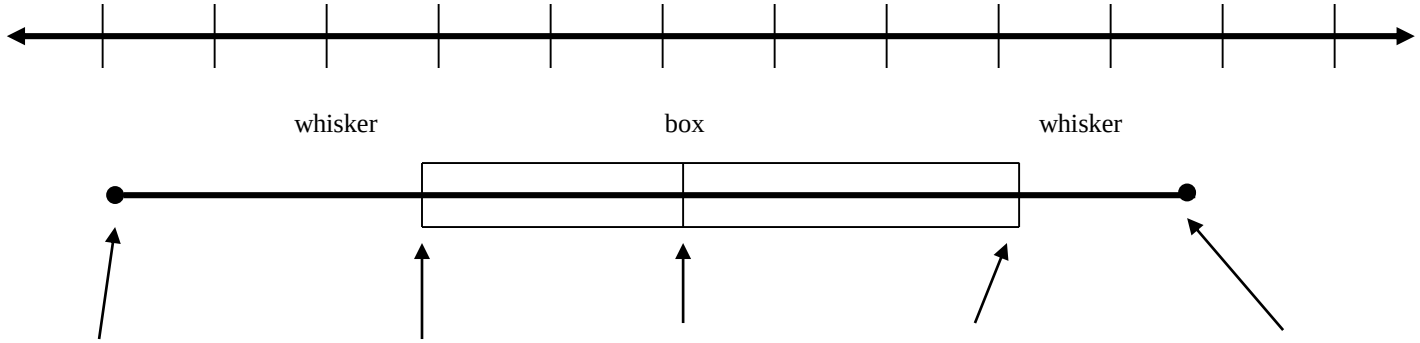
Minimum Value

1st Q.

Median
2nd Q.

3rd Q.

Box and Whisker Plots



Minimum Value

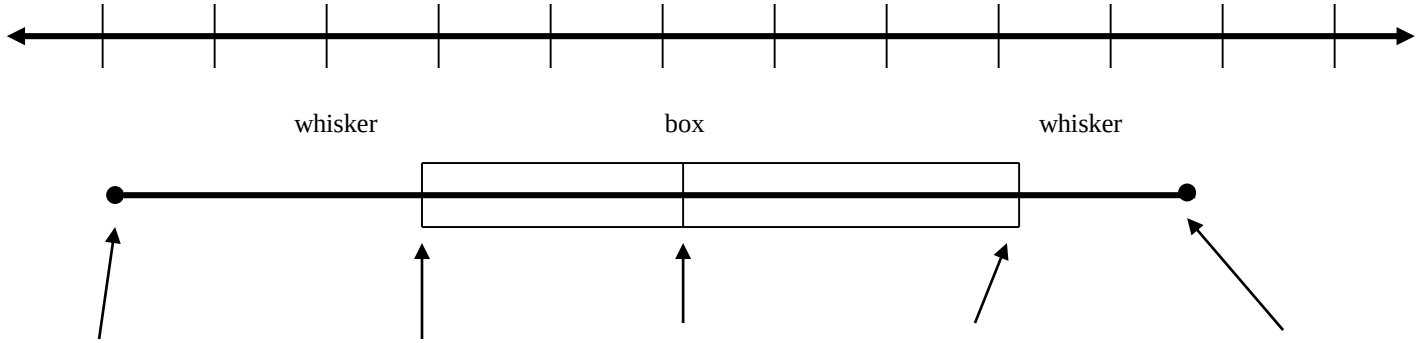
1st Q.

Median
2nd Q.

3rd Q.

Maximum Value
4th Q.

Box and Whisker Plots



Minimum Value

1st Q.

Median
2nd Q.

3rd Q.

Maximum Value
4th Q.

Note that quartile sounds like quarter. Each quartile is one quarter or one fourth of the data. In other words, each quartile is 25% of the data.

Example

- Consider these test scores:
- 50 60 63 71 83 83 85 87 90 98 99
- These scores can be shown as a list or we can display them in a box and whisker plot.

Example

- 50 60 63 71 83 83 85 87 90 98 99
- First find the median. Median =

Example

- 50 60 63 71 83 83 85 87 90 98 99
- First find the median. Median = 83

Example

- 50 60 63 71 83 83 85 87 90 98 99
- First find the median. Median = 83
- To find the 1st and 3rd quartiles, find the median of the 1st and 3rd portions of the data.
- The 1st Quartile is

Example

- 50 60 63 71 83 83 85 87 90 98 99
- First find the median. Median is 83.
- To find the 1st and 3rd quartiles, find the median of the 1st and 3rd portions of the data.
- The 1st Quartile is 63.
- The 3rd Quartile is

Example

- 50 60 63 71 83 83 85 87 90 98 99
- First find the median. Median is 83.
- To find the 1st and 3rd quartiles, find the median of the 1st and 3rd portions of the data.
- The 1st Quartile is 63.
- The 3rd Quartile is 90.
- The minimum value is

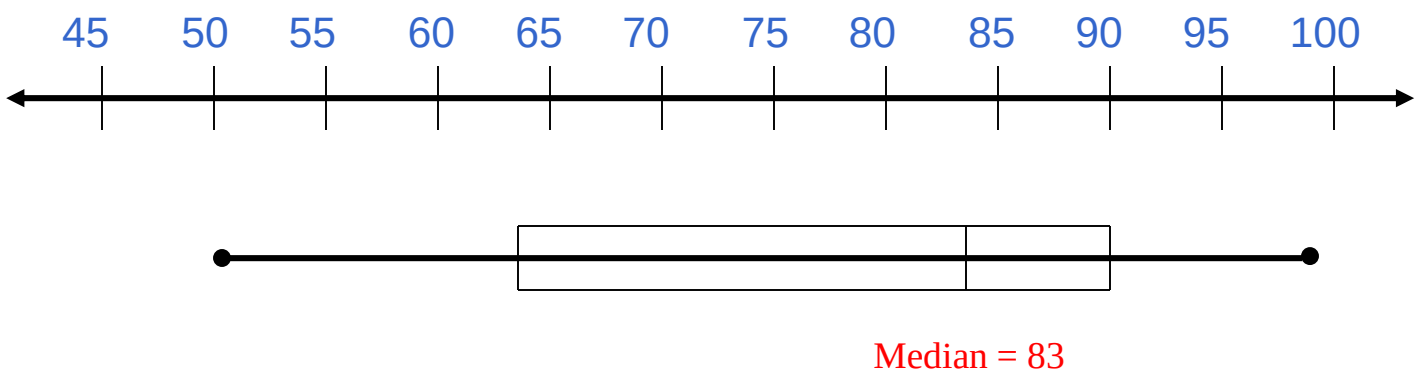
Example

- 50 60 63 71 83 83 85 87 90 98 99
- First find the median. Median is 83.
- To find the 1st and 3rd quartiles, find the median of the 1st and 3rd portions of the data.
- The 1st Quartile is 63.
- The 3rd Quartile is 90.
- The minimum value is 50.
- The maximum value is

Example

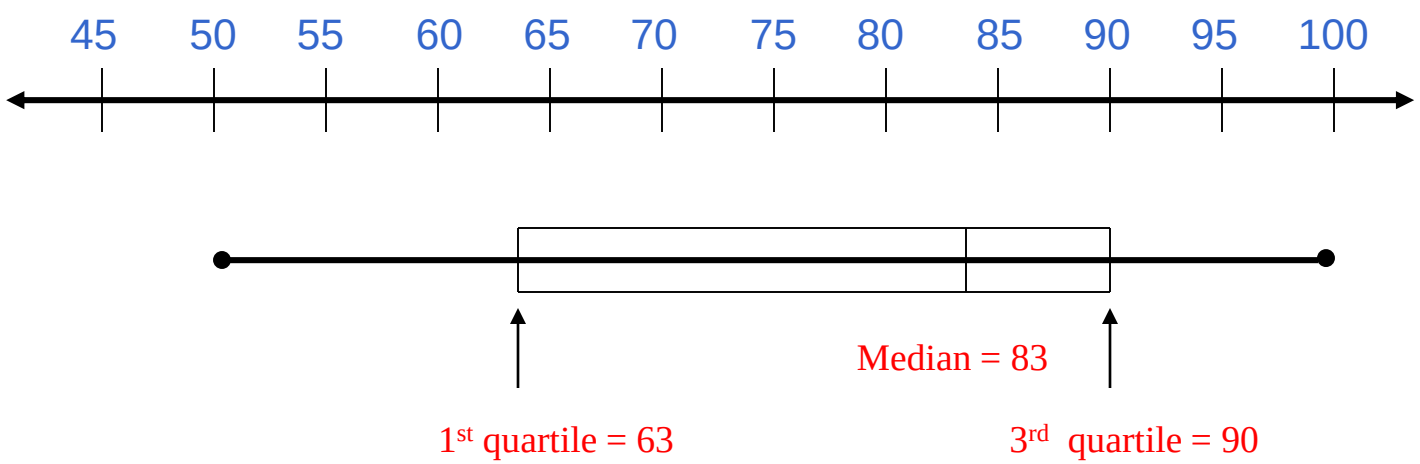
- 50 60 63 71 83 83 85 87 90 98 99
- First find the median. Median is 83.
- To find the 1st and 3rd quartiles, find the median of the 1st and 3rd portions of the data.
- The 1st Quartile is 63.
- The 3rd Quartile is 90.
- The minimum value is 50.
- The maximum value is 99.

Box and Whisker Plots

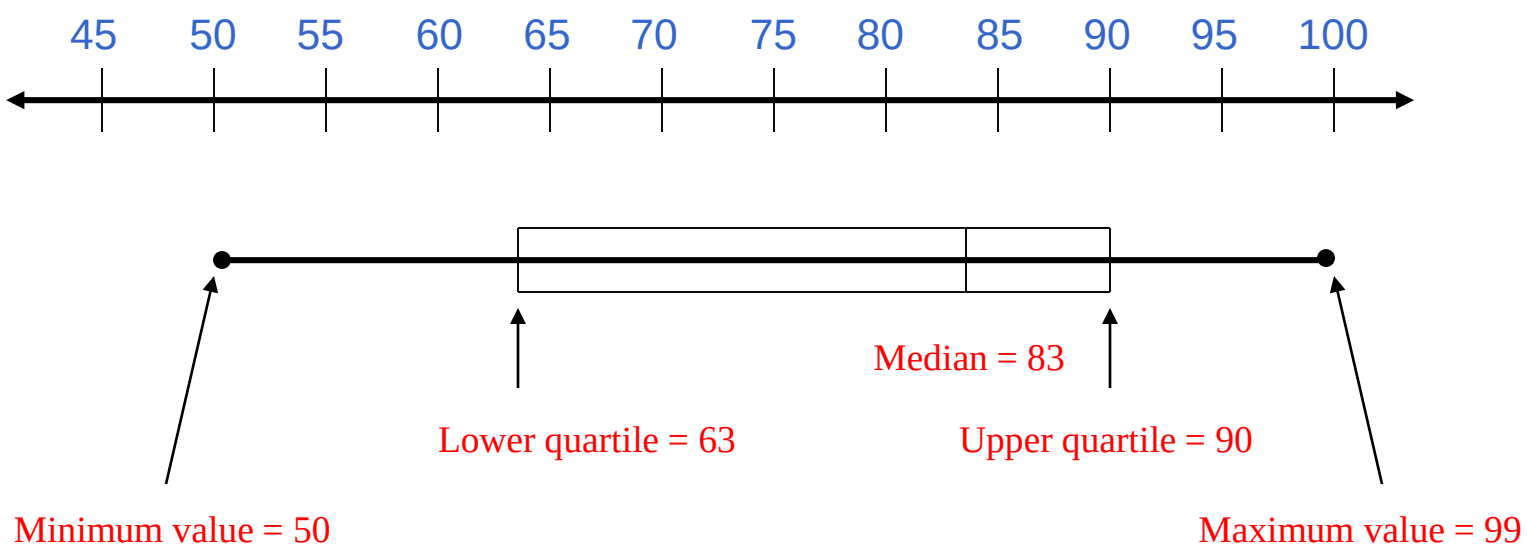


Median = 83

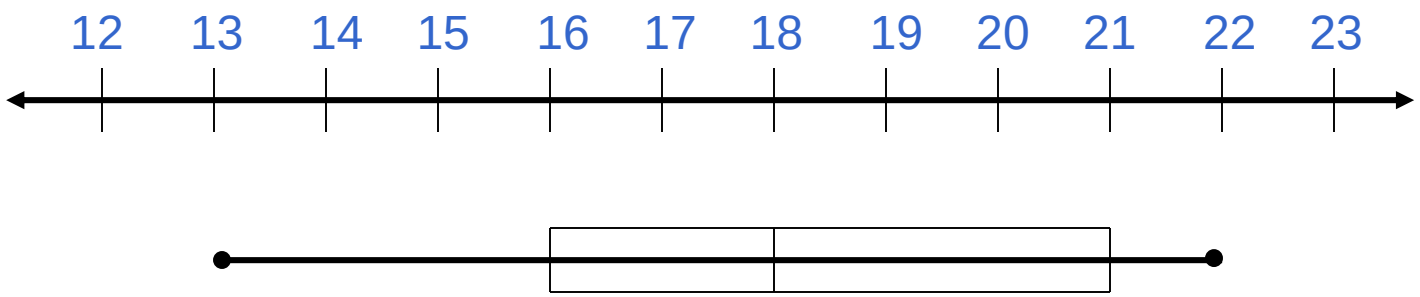
Box and Whisker Plots



Box and Whisker Plots

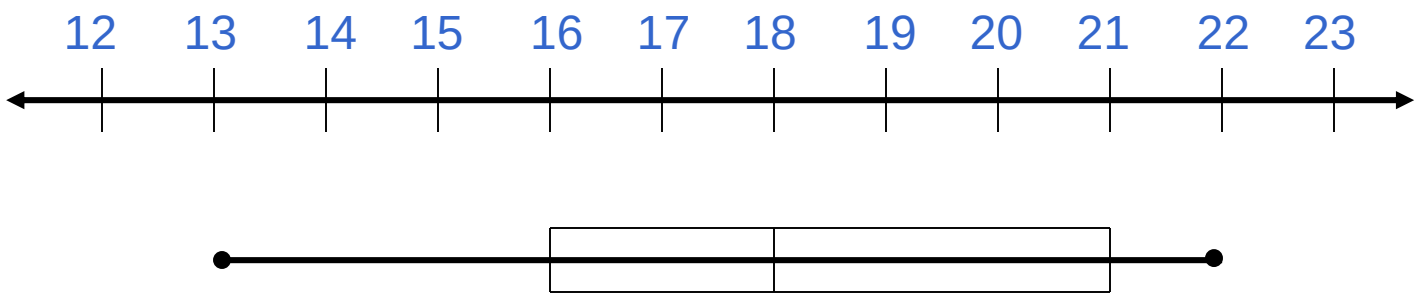


Try This



What is the median?

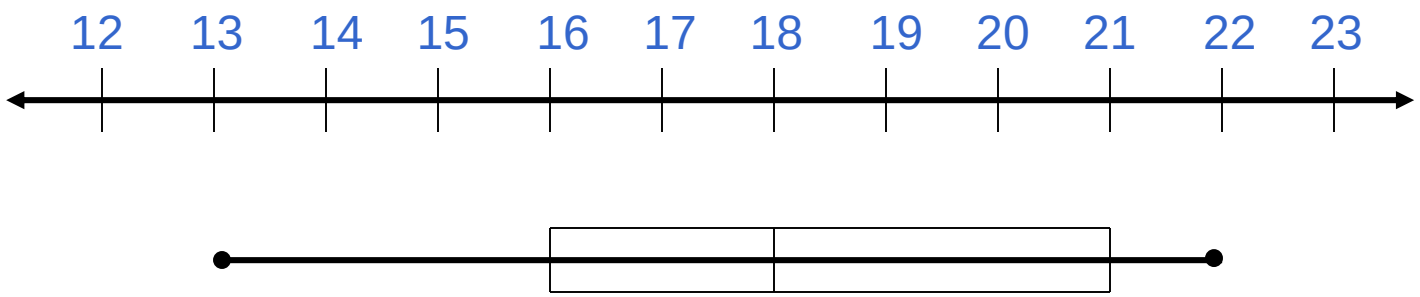
Try This



What is the median? 18

What is the 1st quartile?

Try This

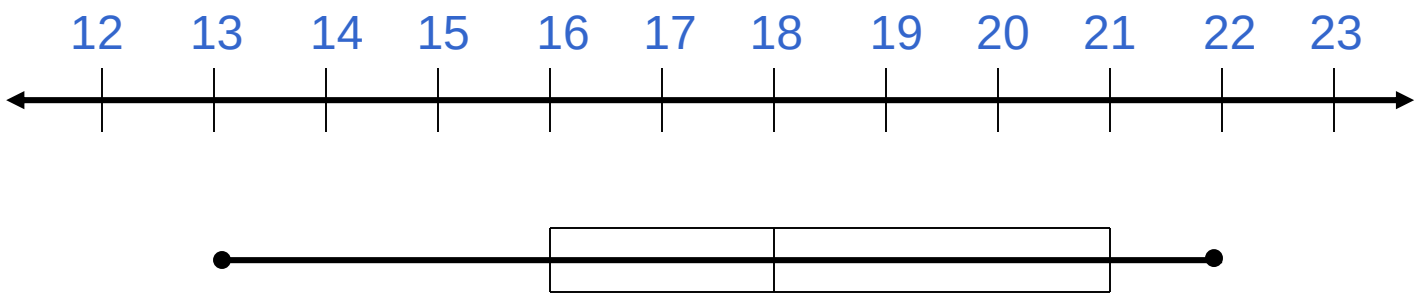


What is the median? 18

What is the 1st quartile? 16

What is the 3rd quartile?

Try This



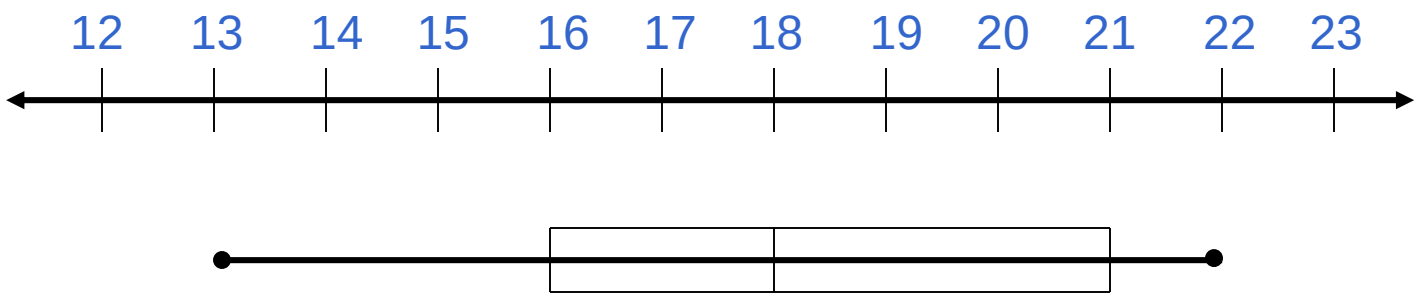
What is the median? 18

What is the 1st quartile? 16

What is the 3rd quartile? 21

What is the minimum value?

Try This



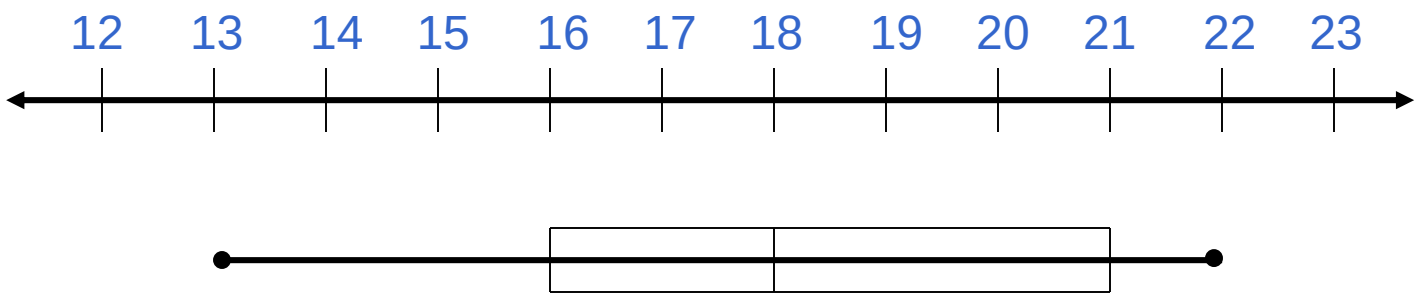
What is the median? 18

What is the 1st quartile? 16

What is the 3rd quartile? 21

What is the minimum value? 13

Try This



What is the median? 18

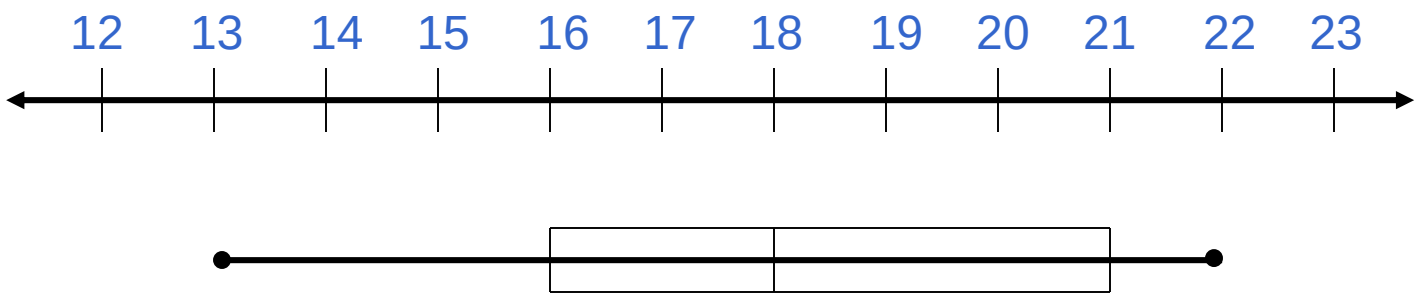
What is the 1st quartile? 16

What is the 3rd quartile? 21

What is the minimum value? 13

What is the maximum value?

Try This



What is the median? 18

What is the 1st quartile? 16

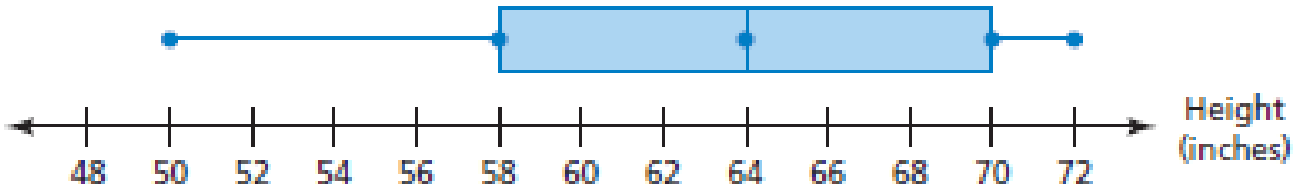
What is the 3rd quartile? 21

What is the minimum value? 13

What is the maximum value? 22

Interpreting a Box-and-Whisker Plot

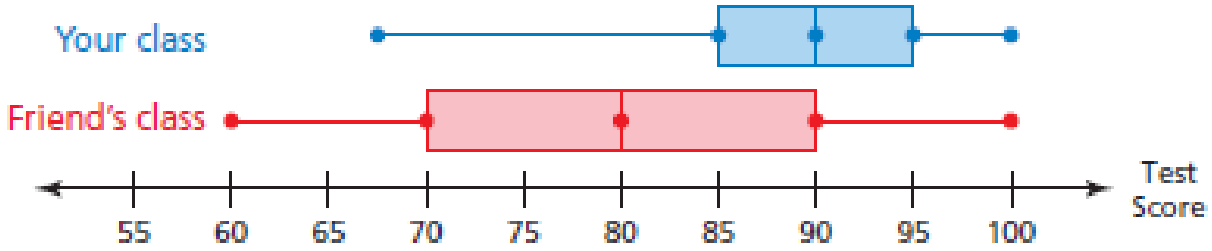
What does the box-and-whisker plot tell you about the data?



- The left whisker is longer than the right whisker. So, the data are more spread out below the first quartile than above the third quartile.
- The range of the data is $72 - 50 = 22$ inches.

Interpreting a Box-and-Whisker Plot

Which statement is true about the double box-and-whisker plot?



(A) Half of the test scores in your class are between 85 and 100.

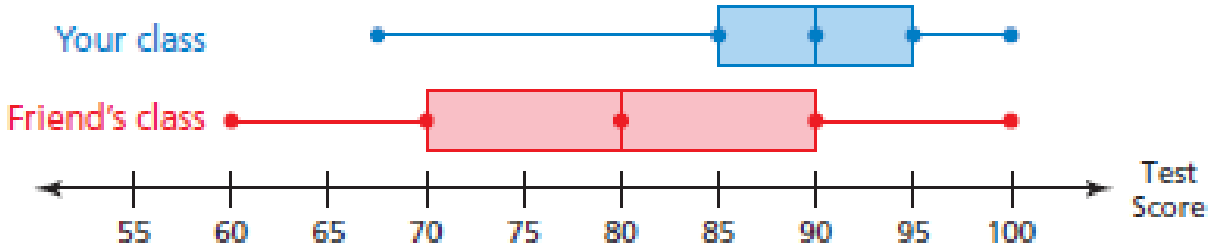
(B) 25% of the test scores in your friend's class are 80 or above.

(C) The medians are the same for both classes.

(D) The test scores in your friend's class are more spread out than the test scores in your class.

Interpreting a Box-and-Whisker Plot

Which statement is true about the double box-and-whisker plot?



(A) Half of the test scores in your class are between 85 and 100.

(B) 25% of the test scores in your friend's class are 80 or above.

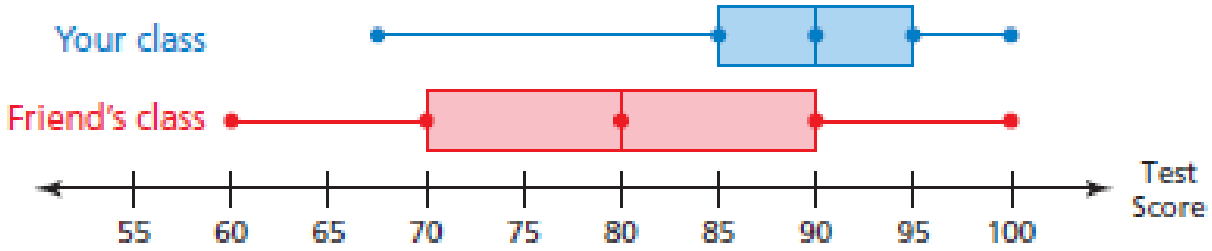
(C) The medians are the same for both classes.

(D) The test scores in your friend's class are more spread out than the test scores in your class.

The range of the test scores in your class is less than the range in your friend's class. Also, the box for your friend's class is longer than the box for your class. So, the test scores in your friend's class are more spread out than the test scores in your class.

Interpreting a Box-and-Whisker Plot

Which statement is true about the double box-and-whisker plot?



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The range of the test scores in your class is less than the range in your friend's class. Also, the box for your friend's class is longer than the box for your class. So, the test scores in your friend's class are more spread out than the test scores in your class.

∴ The correct answer is (D).