



Math Virtual Learning

6th Grade Math

Variability with Range and Interquartile Range

May 13, 2020



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Lesson: May 13, 2020

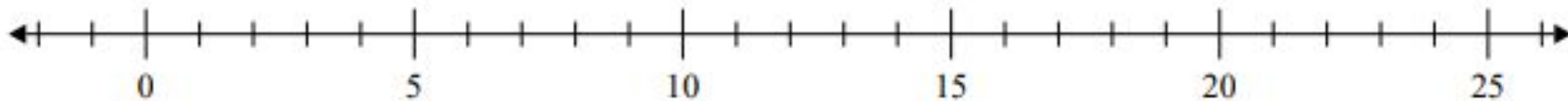
Objective/Learning Target:

Students will find and interpret measures of variability (range and interquartile range).

Warm Up Activity

Create a box plot from the following data set, using the 5 Number Summary.

12, 19, 5, 10, 8, 15, 13, 12, 11, 6



Minimum: _____

Lower Quartile: _____

Median: _____

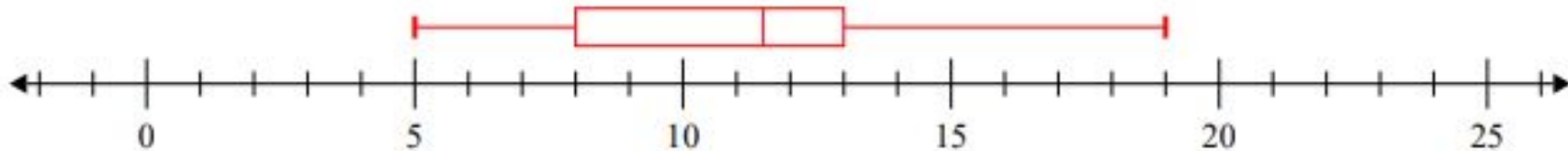
Upper Quartile: _____

Maximum: _____

Warm Up Answers

Create a box plot from the following data set, using the 5 Number Summary.

12, 19, 5, 10, 8, 15, 13, 12, 11, 6



Minimum: 5

Lower Quartile: 8

Median: 11.5

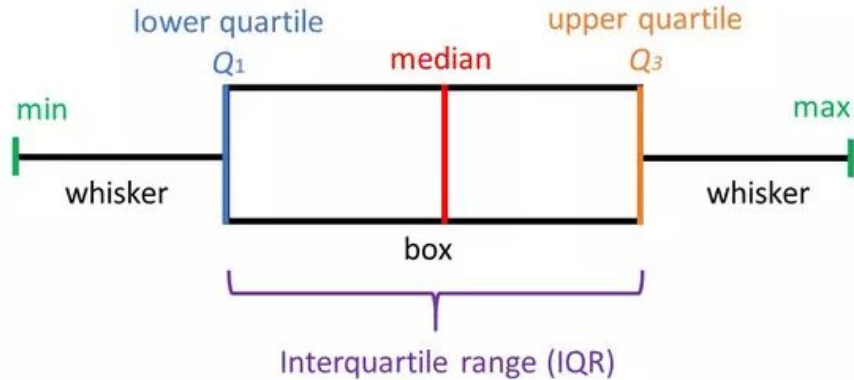
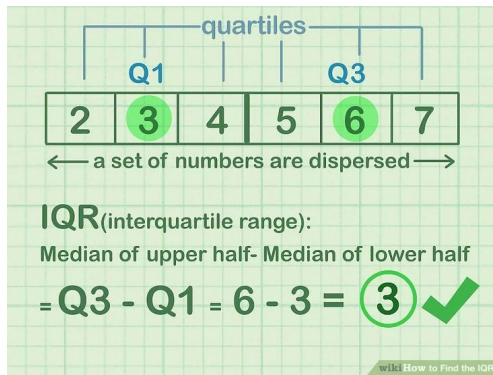
Upper Quartile: 13

Maximum: 19

Lesson Videos

[Interquartile Range \(IQR\)](#)

5 Number Summary



Minimum Score

The lowest score, excluding outliers (shown at the end of the left whisker).

Lower Quartile

Twenty-five percent of scores fall below the lower quartile value (also known as the first quartile).

Median

The median marks the mid-point of the data and is shown by the line that divides the box into two parts (sometimes known as the second quartile). Half the scores are greater than or equal to this value and half are less.

Upper Quartile

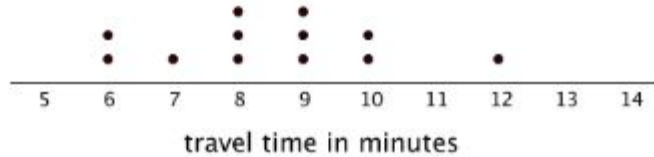
Seventy-five percent of the scores fall below the upper quartile value (also known as the third quartile). Thus, 25% of data are above this value.

Maximum Score

The highest score, excluding outliers (shown at the end of the right whisker).

Practice #1

1. Here is a dot plot you saw in an earlier task. It shows how long Elena's bus rides to school took, in minutes, over 12 days.



Write the five-number summary for this data set by finding the minimum, Q1, Q2, Q3, and the maximum. Show your reasoning.

Five Number Summary:

- Minimum=
- Lower Quartile (Q1)=
- Median (Q2)=
- Upper Quartile (Q3)=
- Maximum=

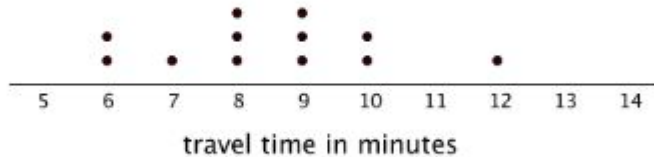
Find the **Range** and **Interquartile Range** of the above data about how long Elena's Bus Rides to school took.

Range:

Interquartile Range:

Practice #1

1. Here is a dot plot you saw in an earlier task. It shows how long Elena's bus rides to school took, in minutes, over 12 days.



Write the five-number summary for this data set by finding the minimum, Q1, Q2, Q3, and the maximum. Show your reasoning.

Five Number Summary:

- Minimum= 6
- Lower Quartile (Q1)= 7.5
- Median (Q2)= 8.5
- Upper Quartile (Q3)= 9.5
- Maximum= 12

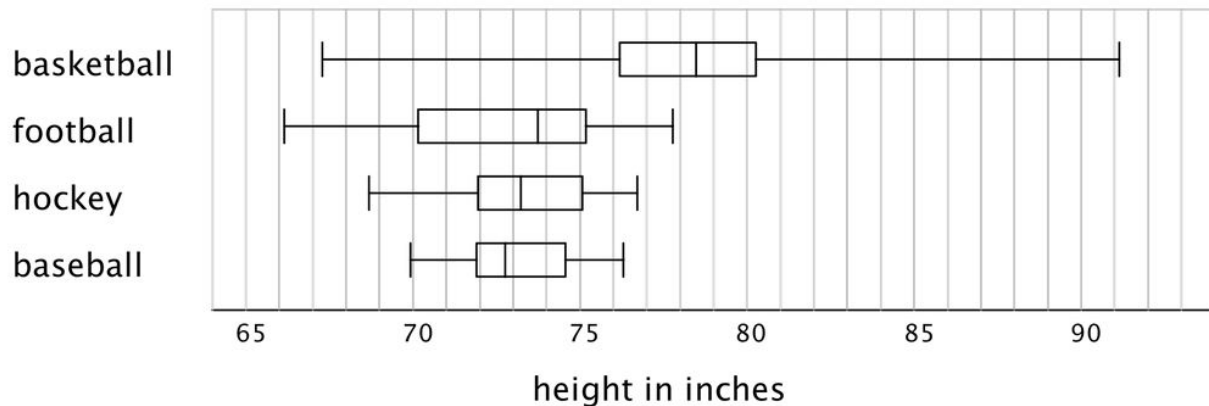
Find the **Range** and **Interquartile Range** of the above data about how long Elena's Bus Rides to school took.

Range: 6 Maximum

Interquartile Range: 2 Upper Quartile (Q3) minus the Lower Quartile (Q1) gives you the answer.

Practice #2

Here are box plots that summarize the heights of 20 professional male athletes in basketball, football, hockey, and baseball.



1. In which two sports are the players' height distributions most alike? Explain your reasoning.
2. Which sport shows the greatest variability in players' heights? Which sport shows the least variability?

Practice #2

1. Hockey and baseball players are most alike. Sample explanation: The two medians are very close (around 73 inches each), their IQRs differ by only about $\frac{1}{2}$ inch.
2. Overall, basketball players show the greatest variability in height (indicated by the largest range). Variability for the middle half of data is the greatest for football players (shown by the largest IQR). Baseball players show the least variability in height (shown by the smallest range and IQR).

Summary/Reflection

What is the difference between interquartile range and range?

What percent of the data is represented in the interquartile range?

Out of mean, median, and range what are you most comfortable with and why?

Additional Practice:

Click on the link below to get additional practice and to check your understanding!

Practice:

[Mathopolis: Range Practice](#)

[Khan Academy: Interquartile Range Practice](#)

[Math Goodies: Range Practice](#)