

Content and Language Objectives:

Students will calculate quartiles, Interquartile ranges (IQR's) and five number summaries of data sets and draw conclusions and justify in writing those conclusions, after:

- creating and interpreting box plots of data sets
- defining outliers
- making a chart with a partner about the characteristics of box plots, interquartile ranges, and outliers

Warm-Up

1. $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$

$$\frac{1}{2} \cdot \frac{3}{3} + \frac{1}{3} \cdot \frac{2}{2} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

2. $\frac{5}{6} - \frac{1}{12} = \frac{9}{12}$

$$\frac{5}{6} \cdot \frac{2}{2} - \frac{1}{12} = \frac{10}{12} - \frac{1}{12} = \frac{9}{12} = \frac{3}{4}$$

3. Find the mean, median and mode of the data set
{2,5,12,15,7,8,5,17}

2, 5, 5, 7, 8, 12, 15, 17

mean: 8.8

median: 8

mode: 5

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Five Number Summary	The five number summary helps to show how the data is spread by finding five values: Minimum, Quartile 1, Median, Quartile 3, Maximum
First Quartile	The median or middle values below the median of a data set
Third Quartile	The median or middle values above the median of a data set

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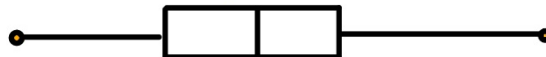
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Box Plot or
Box and Whisker Plot

A one variable data display that shows the five number summary of a data set.

Box Plots are the pictures of 5-number summaries



Interquartile Range
(IQR)

Interquartile range is the range between quartiles

$$Q3 - Q1 = \text{IQR}$$

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Player	Points
Michael Jordan	2357
Toni Kukoc	984
Scottie Pippen	841
Ron Harper	764
Luc Longley	663
Scott Burrell	416
Steve Kerr	376
Dennis Rodman	375
Randy Brown	288
Jud Buechler	198
Bill Wennington	167

In the table to the right is the points scored by Chicago Bulls players who played over 40 games during the 1997-1998 season.

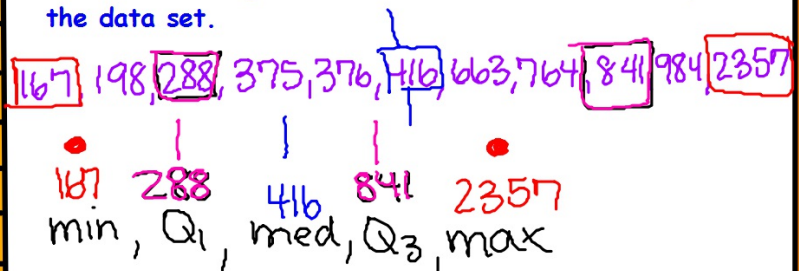
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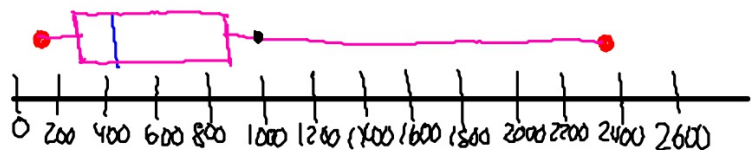
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Five number summaries give us a good picture of what the data is doing, let's find the 5-number summary of the data set.



Now we will graph a box plot of the five number summary



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Write down our 5-number summary

167, 288, 416, 841, 2357

Find the interquartile range(IQR) of our data set about the Chicago Bulls

(Quartile 3 - Quartile 1) = IQR

$$(841 - 288) = 553$$

Five-Number Summaries and Box Plots are a good way to compare two data sets, they allow us to see the data in a different way and help us to understand how the data is distributed or spread

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Try it with a partner!!

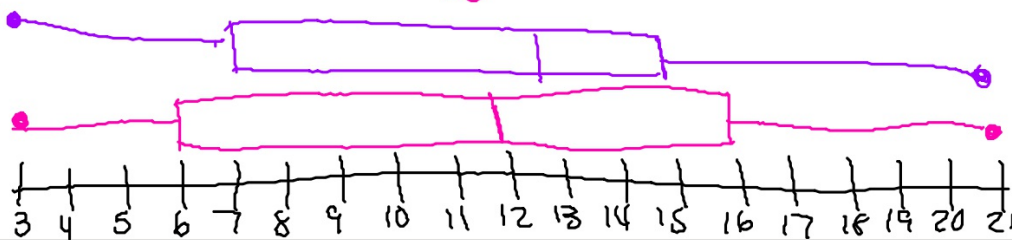
Set 1: {3, 7, 8, 5, 12, 14, 21, 13, 18}

Set 2: {3, 7, 8, 5, 12, 14, 21, 15, 18, 14}

Graph the two box plots on the same line to see how they compare after you find the 5-number summary

Set 1: 3, 5, 7, 8, 12, 13, 14, 18, 21
 6 12 $\frac{14+18}{2}$ 16
 Q₁ med Q₃

Set 2: 3, 5, 7, 8, 12, 14, 14, 15, 18, 21
 12 13 15
 Q₁ med Q₃



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Classwork:

Page 55; #1,3,4 and 7 (if time allows)

Exit Ticket

