



Math Virtual Learning

Math 7/Pre-Algebra

Box Plots

April 27, 2020

Math 7/Pre-Algebra
Lesson: April 27, 2020

Objective/Learning Target:

Students will create and interpret box plots.

Warm-up

- Find the range, mean (**average**), median (**middle**), and mode (**most**) of the set of numbers below:

- 8, 13, 11, 4, 10, 6, 7, 13, 4, 11, 1

- Mean:

- Median:

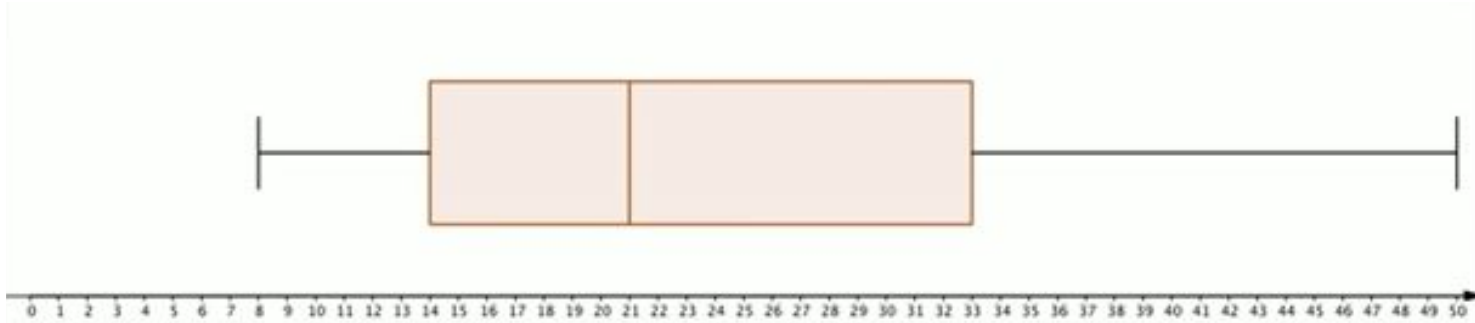
- Mode:

Warm-up **Answers**

- Find the mean (**average**), median (**middle**), and mode (**most**) of the set of numbers below:
- 8, 13, 11, 4, 10, 6, 7, 13, 4, 11, 1
- Mean: $8+13+11+4+10+6+7+13+4+11+1=88$ $88\div 11 = 8$
- Median: 1, 4, 4, 6, 7, 8, 10, 11, 11, 13, 13
- Mode: 1, 4, 4, 6, 7, 8, 10, 11, 11, 13, 13

Box Plots

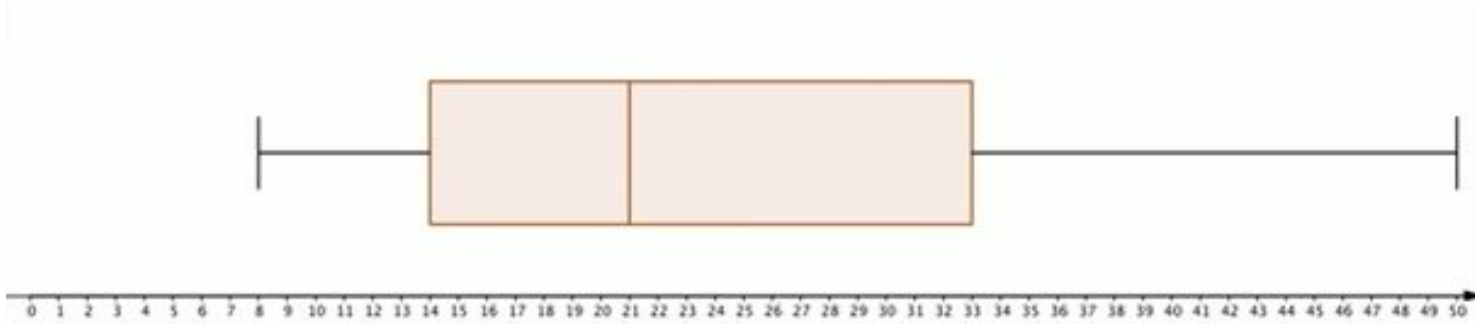
- *An ecologist surveys the age of 100 trees in a local forest.*



- According to the box plot, what is the range of tree ages surveyed?
- What is the median age of trees surveyed?
- *Click [here](#) to watch a video.*

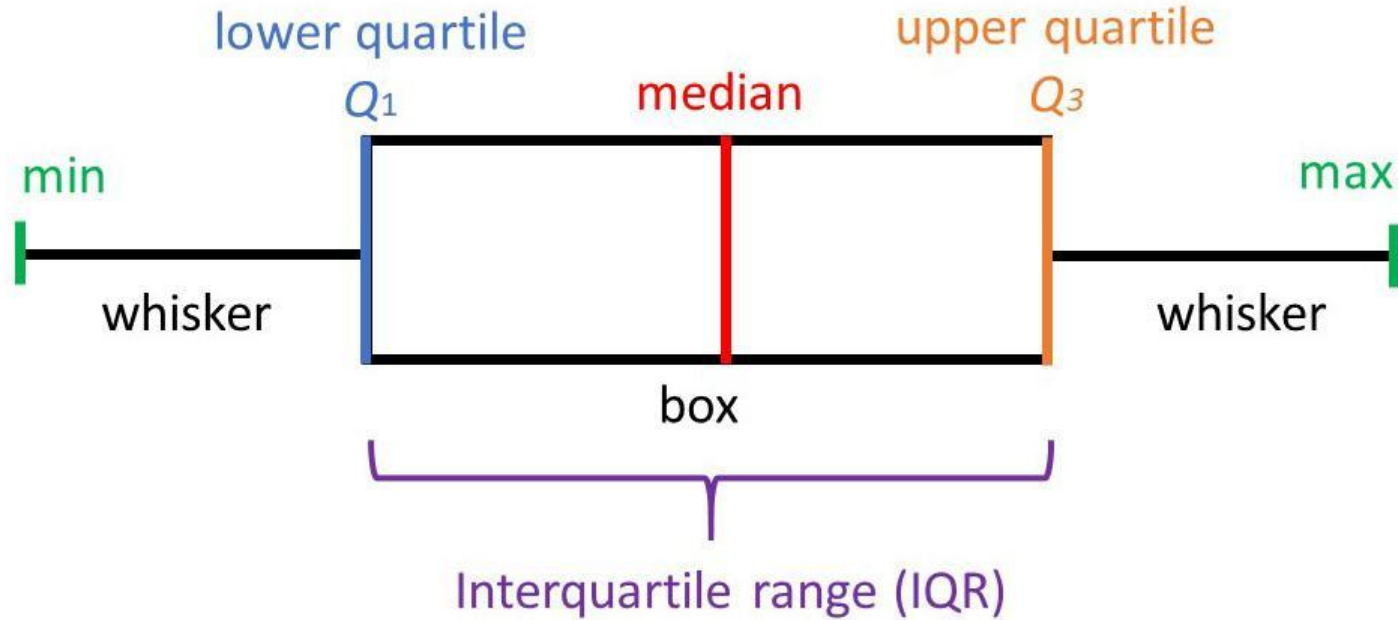
Box Plots

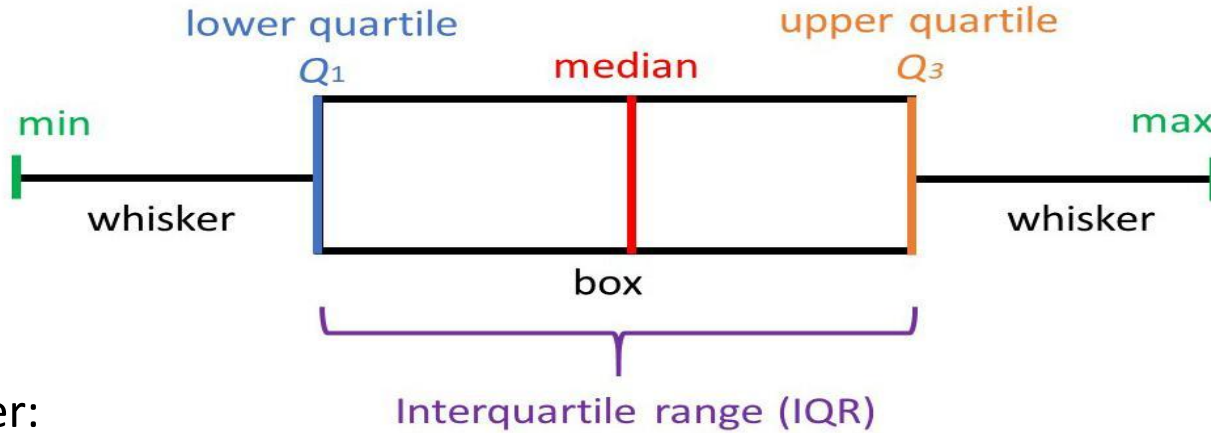
- *An ecologist surveys the age of 100 trees in a local forest.*



- According to the box plot, what is the range of tree ages surveyed?
42 years
- What is the median age of trees surveyed? *21 years*

Box Plots





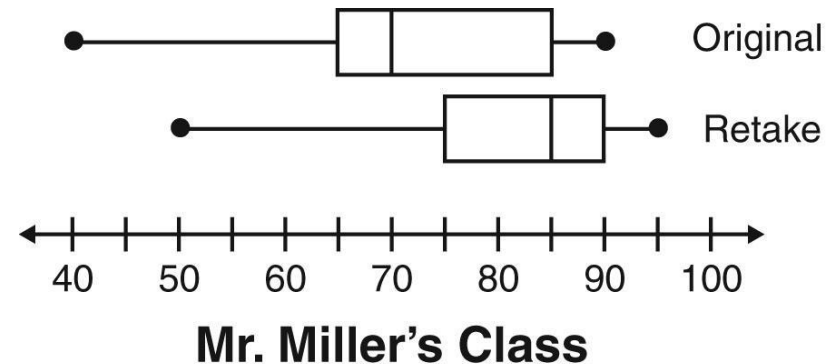
Remember:

- **Median** is the **middle** value in a set of data arranged in order, low to high.
- To find the **lower quartile**, find the middle value of all the values *below* the median.
- To find the **upper quartile**, find the middle value of all the values *above* the median.
- **Interquartile range** is the distance from the lower quartile to the upper quartile.

Quizizz!

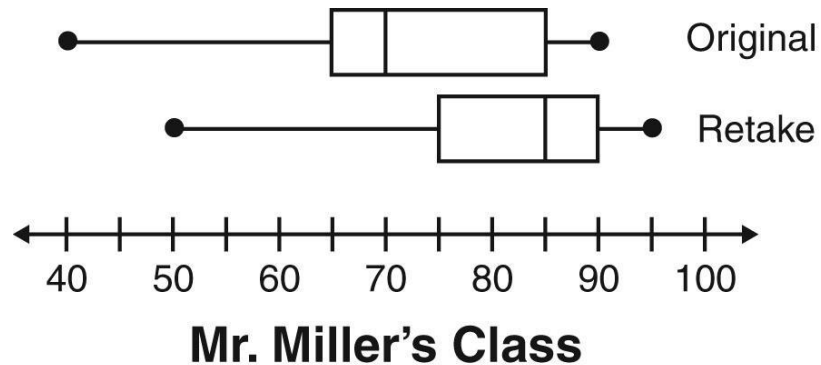
- Study the [flashcards or play](#) the quiz game!

- *On paper, answer the following questions about testing in Mr. Miller's class.*
 - *Answers on the next slide.*
- How much higher was the median test score on the retake from the original?
- What was the range of scores on the original test? What was the range on the retake?
- Which is higher: the median on the original test, or the lower quartile on the retake?
- Which is higher: the original Q3, or the median (Q2) on the retake?



• ANSWERS

- How much higher was the median test score on the retake from the original?
 - *The retake median (85) was 15 points higher than the original median (70).*
- What was the range of scores on the original test? What was the range on the retake?
 - *Original range: $(90-40) = 50$. Retake range: $(95-50) = 45$.*
- Which is higher: the median on the original test, or the lower quartile on the retake?
 - *The retake Q1 (75) is higher than the original median, or Q2 (70).*
- Which is higher: the original Q3, or the median (Q2) on the retake?
 - *Both are the same (85).*



Your turn! On paper, create a box plot for the following data.

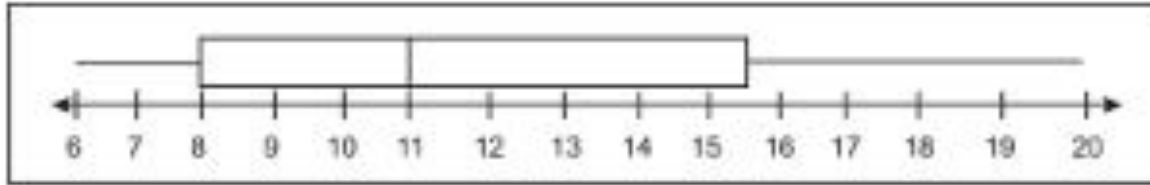
- Here is the data set from a survey of the number of hours worked by teenagers with part-time jobs:
- 6, 8, 8, 8, 10, 10, 11, 11, 12, 15, 16, 16, 20

Here are the steps to drawing a box-and-whisker plot:

1. Draw a number line labeled to show the range of data from least to greatest.
 2. Identify the median, the upper quartile, the lower quartile, the lower extreme and the upper extreme on the number line.
 3. Draw in a box around the quartiles. The median is the middle line of the two boxes.
 4. Then draw in the whiskers. These are lines that extend from each quartile to the upper and lower extremes.
- *Correct example on the next slide*

Solution

- Here is the data set from a survey of the number of hours worked by teenagers with part-time jobs:
- 6, 8, 8, 8, 10, 10, 11, 11, 12, 15, 16, 16, 20



- The first box goes from the **lower quartile 8** to the **median 11**.
- The second box goes from the median 11 to the **upper quartile 15.5**.
- The whiskers extend out from the lower quartile to the **lower extreme** of **6**, and from the upper quartile to the **upper extreme** of **20**.

Extra Practice

- Reading box plots
- Creating box plots
- Analyzing data on box plots

