

Algebra 1 0.12

Find measures of central tendency, variation, and position

variable

Activity: grab cubes

data

measurement

qualitative (categorical)

quantitative (numerical)

univariate

central tendency

mean

median

mode

variation

range

quartile

IQR

outlier

5-number summary

min

Q_1

med (Q_2)

Q_3

max

Key Concept Measures of Center

- The **mean** is the sum of the values in a data set divided by the total number of values in the set.
- The **median** is the middle value or the mean of the two middle values in a set of data when the data are arranged in numerical order.
- The **mode** is the value or values that appear most often in a set of data. A set of data can have no mode, one mode, or more than one mode.

Skol Vikings!

Example 1 Measures of Center

BASEBALL The table shows the number of hits Marcus made for his team. Find the mean, median, and mode.

Team Played	Hits
Badgers	3
Hornets	6
Bulldogs	5
Vikings	2
Rangers	3
Panthers	7

Quartiles:

25 31 36 39 40 41 44 45 49 50 54



Example 3 Five-Number Summary

FUNDRAISER The number of boxes of donuts Aang sold for a fundraiser each day for the last 11 days were 22, 16, 35, 26, 14, 17, 28, 29, 21, 17, and 20. Find the minimum, lower quartile, median, upper quartile, and maximum of the data set. Then interpret this five-number summary.

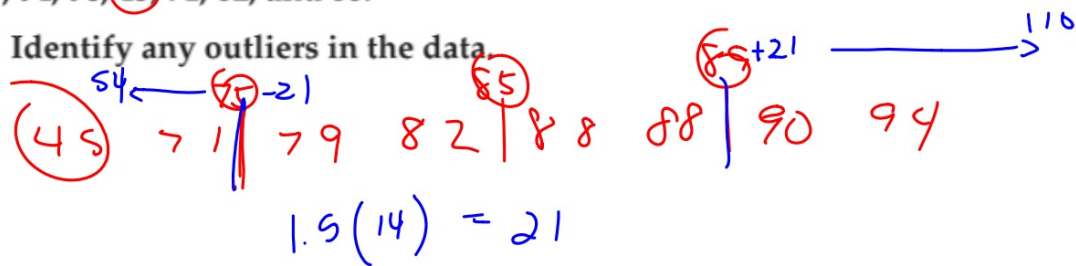
IQR
Outlier

Example 4 Effect of Outliers



TEST SCORES Students taking a make-up test received the following scores: 88, 79, 94, 90, 45, 71, 82, and 88.

a. Identify any outliers in the data.



- b. Find the mean and median of the data set with and without the outlier.
Describe what happens.

Data Set	
with outlier	45 71 79 82 88 88 90 94
without outlier	71 79 82 88 88 90 94

mean 79.4
med 85

mean 84.6 (65.2)
med. 88 (+3)

extreme (outlier)
affects mean the most

min 45*

Q₁ 75

med 85

Q₃ 89

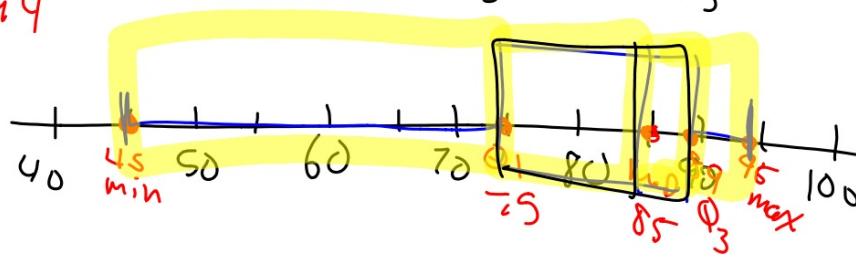
max 94

Boxplot

1. 5 number Summary

2. Number line

3. Middle 3 = box
outsides = whiskers



min	40
Q_1	50
med	60
Q_3	80
max	90

