Algebra 1 0.12

Find measures of central tendency, variation, and position

range

variable

data

measurement

qualitative (categorical)

quantitative (numerical)

univariate

central tendency

- mean
- median
- mode

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variation

- range
- quartile
- IQR
- outlier
- 5-number summary

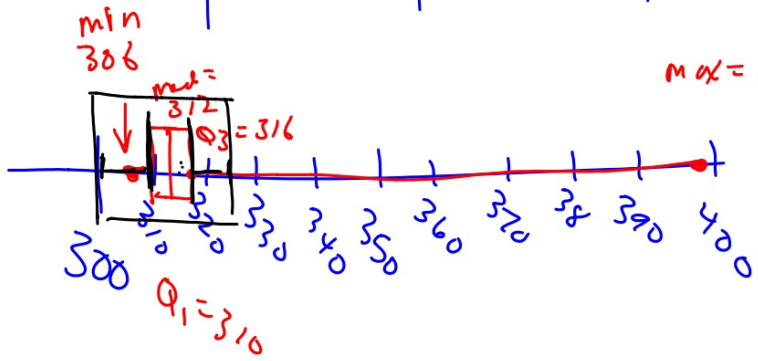
Grab (different) cubes for data

~~311~~ ~~309~~ ~~312~~ ~~314~~ ~~399~~

~~312~~ ~~306~~ ~~318~~

306 309 | 311 312 | 312 314 | 318 399

min = 306
Q_1 = 310
med = 312
Q_3 = 316
max 399



IQR = 6

1.5(6) = 9

$\frac{637}{8}$ $\frac{592}{7}$

~~45~~ 71 | 79 82 | 88 88 90 94

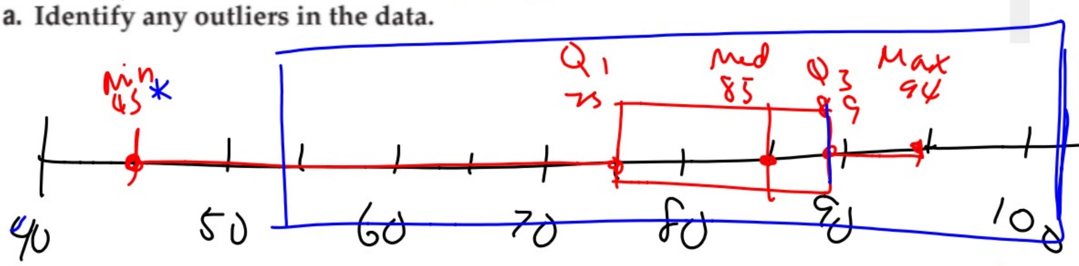
min 45
Q_1 75
med 85
Q_3 89
max 94

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.

45 is an outlier

a. Identify any outliers in the data.



5 number summary
IQR
Outlier

$IQR = 89 - 75 = 14$
$1.5(14) = 21$

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

Data Set	Mean	Median
with outlier	79.6	85
without outlier	84.6	88

+5 +3