Algebra I

Measurements of Data

Given the following data set,write down everything you can about the data set and use any graphical method to display it.

1, 2, 2, 3, 3, 4, 4, 5, 6, 6, 7, 7, 8, 8, 9

Mean mathematical average
$\frac{\text{sum of numbers}}{\text{how many numbers}} = \frac{\Sigma x}{\text{how many}}$
$\frac{75}{15} = 5$

Mode number(s) that appear most
2, 3, 4, 6, 7, 8

Median Middle number of an ordered list
5

Minimum value 1

Maximum value 9

Range max − min
9 − 1 = 8

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Quartiles and Interquartiles - Box and Whiskers

Quartiles measure the spread of the data.

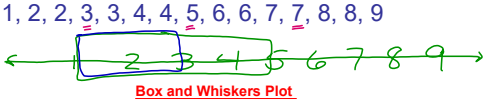
Quartiles divide a data set into four equal parts. Each quartile contains one-fourth of the values in the set.

The first quartile is the median of the lower half of the data set. Also known as the Lower Quartile Q1.

The median is the second quartile Q2 of the data set.

The third quartile is the median of the upper half of the data set. Also known as the Upper Quartile Q3.

1, 2, 2, 3, 3, 4, 4, 5, 6, 6, 7, 7, 8, 8, 9



Box and Whiskers Plot

We use the data above to create a box and whiskers plot.

We write out the data on a number line. Then draw a box around the first and third quartile values, a vertical line through the median and then attach lines from the ends of the box to the minimum and maximum values.

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TRY

The number of runs scored by a softball team in 19 games is given. Use the data to make a box-and-whisker plot and all central tendency information.

mean, median, mode, range

3, 8, 10, 12, 4, 9, 13, 20, 12, 15, 10, 5, 11, 5, 10, 6, 7, 6, 11

Mean 9.13

Mode 10

Median 10

Min 3

Max 20

range = 17

Q1 6 ← median (lower)

Q2 10 ← median (whole set)

Q3 12 ← median (upper half)

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Ways to Display Data

List the different ways to display a data set. Then ask your neighbor when is it more appropriate to use on over another.

Stem and Leaf

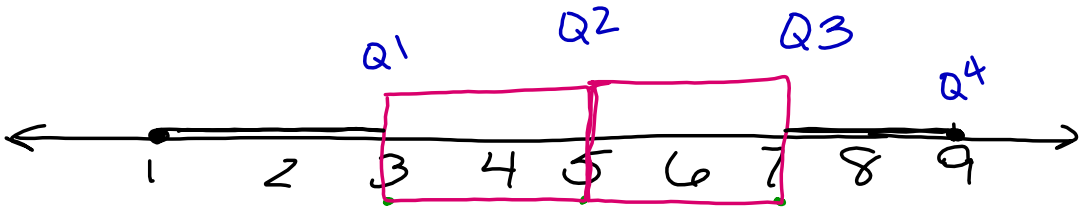
Bar chart

Histogram - line chart

Pie chart

Table

Double histogram etc


Q1
Q2
Q3
Q4
1
2
3
4
5
6
7
8
9