

### 1.3: Sigma Notation and Measures of Center

<p><b>Sigma Notation</b></p> $\sum_{i=1}^n x_i =$	<p><b>Example:</b></p> $\sum_{k=1}^4 2k + 3 =$
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Practice.

1. Consider a set of x-values:  $x_1 = 14, x_2 = 16, x_3 = 15, x_4 = 18, x_5 = 17$

$$\sum_{i=1}^5 x_i =$$

2. Evaluate.

$$\sum_{i=1}^6 i^2 =$$

<p style="text-align: center;"><b>Mean</b></p> <p>Also written as</p> <p style="text-align: center;">_____</p>	<p>Definition:</p> <p><b>Mean</b> is the _____ measure of center.</p> <p>How to find it?</p>
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It is convenient to use sigma notation to define the **mean** of a set of data.

1. Express the mean of the fastest 100m runs in sigma notation and solve.

As of 8/26/2016, the 10 fastest 100 m runs are as follows:  
(source: [http://www.alltime-athletics.com/m\\_100ok.htm](http://www.alltime-athletics.com/m_100ok.htm))

1	9.58	+0.9	Usain Bolt
2	9.63	+1.5	Usain Bolt
3	9.69	±0.0	Usain Bolt
3	9.69	+2.0	Tyson Gay
3	9.69	-0.1	Yohan Blake
6	9.71	+0.9	Tyson Gay
7	9.72	+1.7	Usain Bolt
7	9.72	+0.2	Asafa Powell
9	9.74	+1.7	Asafa Powell
9	9.74	+0.9	Justin Gatlin

2. The following data points represent the NBA players average number of points scored per 48 minutes of play in the 2016-2017 regular season. [http://www.espn.com/nba/statistics/player/\\_/stat/scoring-per-game/sort/avgPoints/count/241](http://www.espn.com/nba/statistics/player/_/stat/scoring-per-game/sort/avgPoints/count/241)

Player	Average_P...
Russell Westbrook	31.6
James Harden	29.1
Isiah Thomas	28.9
Anthony Davis	28.0
DeMar DeRozan	27.3
Damian Lillard	27.0
DeMarcus Cousins	27.0
LeBron James	26.4
Kawhi Leonard	25.5
Stephan Curry	25.3
Kyrie Irving	25.2
Karl Anthony Towns	25.1
Kevin Durant	25.1
Jimmy Butler	23.9
Paul George	23.7
JJ Redick	15.0
Jae Crowder	13.9
Wesley Johnson	2.7

The mean is affected by _____.	
<b>Outliers</b>	Definition:

Examples: Calculate the mean of the two data sets.

1.) 1, 2, 5, 6, 7, 9, 100

2.) 1, 2, 5, 6, 7, 9

Which mean is a better measure of center?

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<b>Median</b>	Definition:  _____ most common measure of center.  Data must be in _____ or _____ order.
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Examples:

Calculate the median of the data set of NBA players.

If you have an even amount of data, you will have to calculate the \_\_\_\_\_ of the middle two numbers.

Player	Average_P...
Russell Westbrook	31.6
James Harden	29.1
Isiah Thomas	28.9
Anthony Davis	28.0
DeMar DeRozan	27.3
Damian Lillard	27.0
DeMarcus Cousins	27.0
LeBron James	26.4
Kawhi Leonard	25.5
Stephan Curry	25.3
Kyrie Irving	25.2
Karl Anthony Towns	25.1
Kevin Durant	25.1
Jimmy Butler	23.9
Paul George	23.7
JJ Redick	15.0
Jae Crowder	13.9
Wesley Johnson	2.7

Mean of NBA players:

Median of NBA players:

Practice.

1. The weekly salaries of six employees at McDonalds are \$140, \$220, \$90, \$180, \$140, \$200. For these six salaries, find a) the mean, b) the median, and c) the mode.

2. The table shows the scores of competitors in a competition.

Score	10	20	30	40	50
Number of competitors with this score	1	2	5	$k$	3

The mean score is 34. Find the value of  $k$