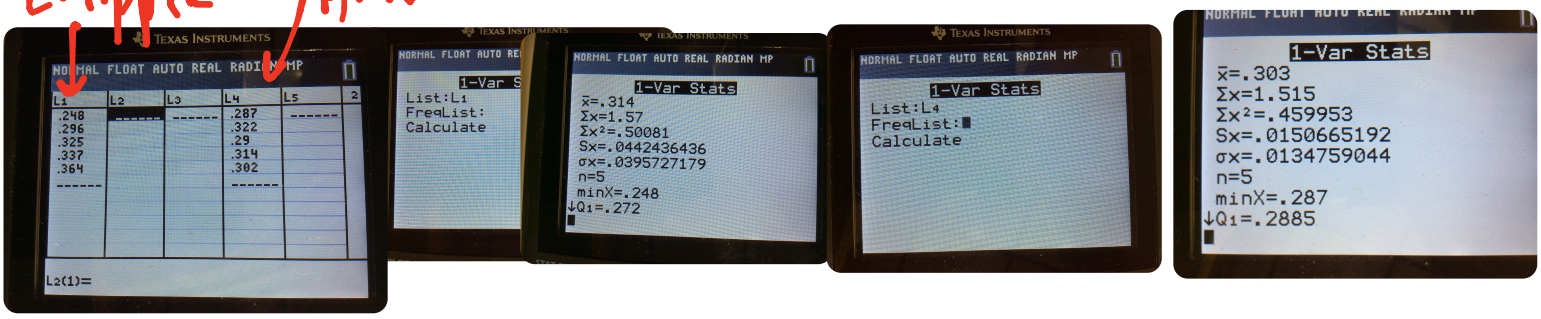
Chipper AND



Round to 4 decimal places

Consider the batting averages per year for Chipper Jones and Alex Rodriguez:

Year	Chipper Jones	Alex Rodriguez
2004	.248	.287
2005	.296	.322
2006	.325	.290
2007	.337	.314
2008	.364	.302

A)What is the mean absolute deviation for Chipper Jones' batting averages?

.0336

B)What is the mean absolute deviation for Alex Rodriguez's batting averages?

.012

C)Which player has the higher **mean** batting average (not mean absolute deviation)?

Chipper (Larry)

D)Based on the mean absolute deviations from A) and B) above, who has been the more consistent hitter? Write a complete sentence.

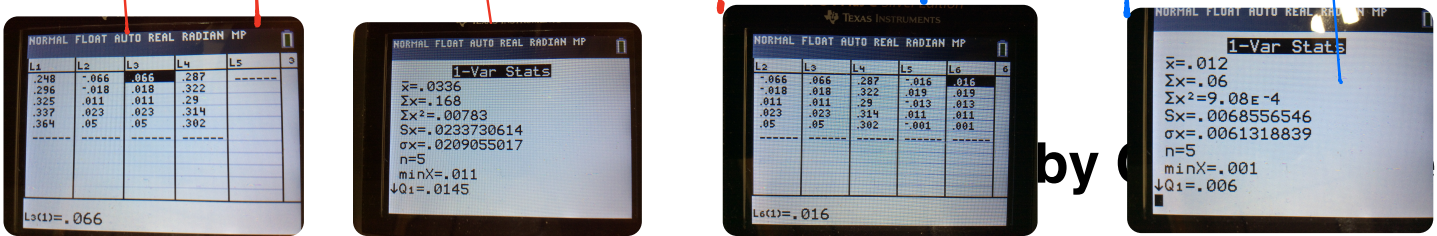
Alex b/c he has the lower MAD

E)Based on the means from C) above, who has been the better hitter?

?

x	$\bar{x}$	$x-\bar{x}$	$\lvert x-\bar{x}\rvert$
.248	.314	-.066	.066
.296	.314	-.018	.018
.325	.314	.011	.011
.337	.314	.023	.023
.364	.314	.05	.05

x	$\bar{x}$	$x-\bar{x}$	$\lvert x-\bar{x}\rvert$
.287	.303	-.016	.016
.322	.303	.019	.019
.290	.303	-.013	.013
.314	.303	.011	.011
.302	.303	-.001	.001



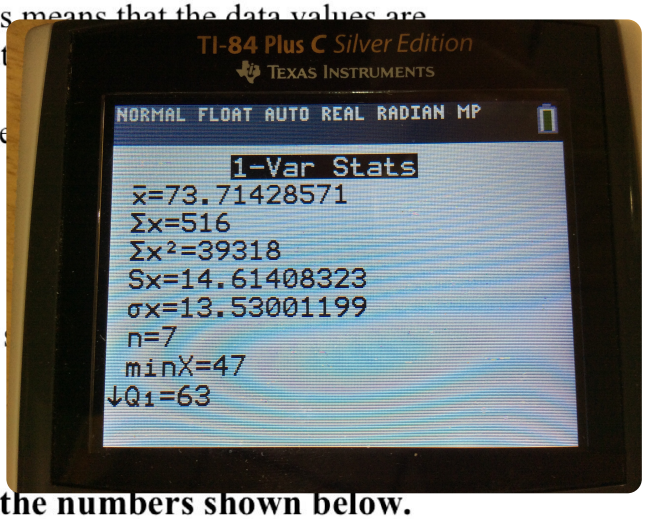
by Chipper

Mean Absolute Deviation (MAD)

Another measure of variability is called the mean absolute deviation. The **mean absolute deviation** (MAD) is the average of the absolute values of the differences between each data value in a data set and the set's mean. In other words, it is the average distance that each value is away from the mean.

If a data set has a small mean absolute deviation, then this means that the data values are relatively close to the mean. Would does this mean about

If the mean absolute deviation is large, then the values are



To find the MAD:

1. Find the mean
2. Subtract each data value from the mean
3. Take the absolute value of each value from
4. Add up all values from step #3.
5. Divide by the number of data values.

EX. Find the MAD (Mean Absolute Deviation) of the numbers shown below.

80, 76 , 63 , 92 , 47 , 82 and 76.

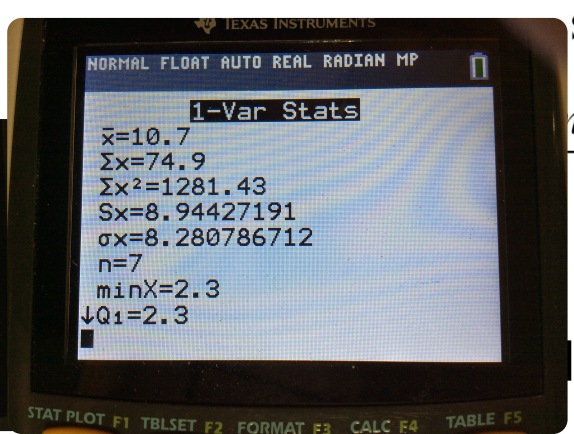
MAD worksheet

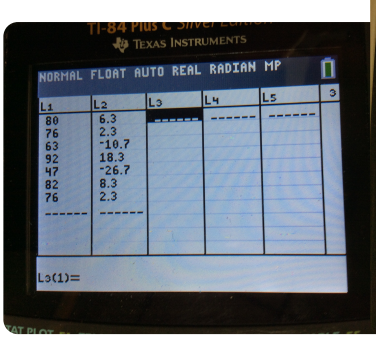
x	$\bar{x}$	$x - \bar{x}$	$\lvert x - \bar{x} \rvert$
80	73.7	6.3	6.3
76	73.7	2.3	2.3
63	73.7	-10.7	10.7
92	73.7	18.3	18.3
47	73.7	-26.7	26.7
82	73.7	8.3	8.3
76	73.7	2.3	2.3

SUM: _____

$\frac{n}{-} =$

10.7
MAD





To decide which measure of central tendency (mean or median) and which measure of variability Interquartile Range (IQR), Mean Absolute Deviation (MAD), or Standard Deviation (SD) is best:

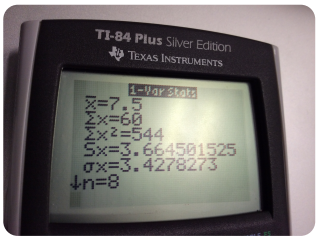
1. See which describes the data best. Which number seems to be more in the center of the numbers?
2. If there are outliers, median and IQR will be best.
3. If there are no outliers, choose which number seems to be closer to most of the data values.

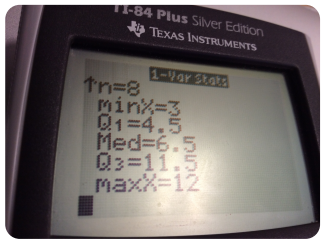
Look at Problem 1: 4, 12, 5, 7, 11, 3, 6, and 12

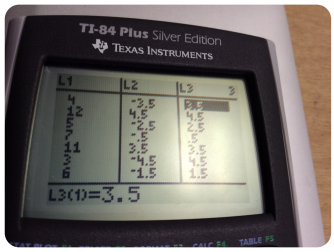
Mean = 7.5 Median = 6.5 IQR = 7 MAD = 3.1 SD = 3.4

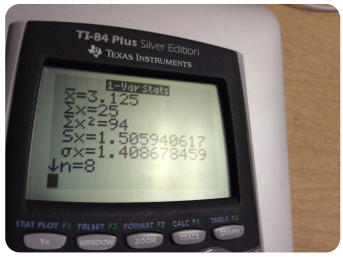
Q3-Q1

Which measure of central tendency and measure of variability describe the data best?





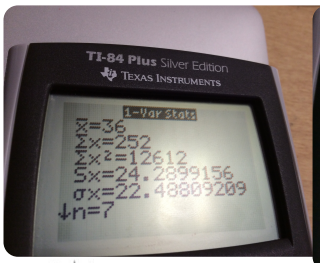


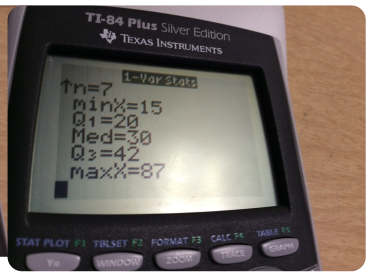


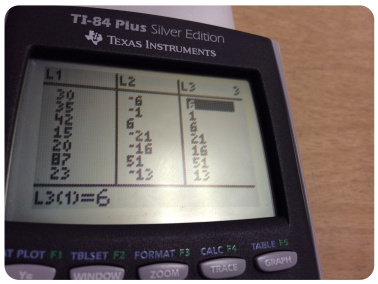
Look at Problem 2: 30, 35, 42 , 15 , 20, 87 , and 23

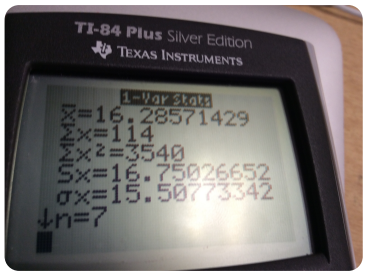
Mean = 36 Median = 30 IQR = 22 MAD = 16.2 SD = 22.5

Which measure of central tendency and measure of variability describe the data best?









What do you notice about the differences in the numbers in Problem 1 vs. Problem 2?