Summary Statistics

In statistics, we have a set of calculations that we use to find data to evaluate. These calculations are important in helping us assess the data.

- Before we can make these calculations, we need to put the data in order from **LEAST TO GREATEST**.

Summary Statistic	9, 3, 2, 1, 12, 5, 6, 6, 8	13, 12, 14, 11, 12, 14, 16, 10	6, 8, 6, 9, 5, 6, 3
5 Number Summary	2, 3, 5, 6, 6, 7, 8, 9, 12		
1. Minimum The smallest number.	2		
2. Maximum The largest number.	12		
4. Lower Quartile (Q_1)		$\frac{3+5}{2} = \frac{8}{2} = 4 = Q_1$	
5. Upper Quartile (Q_3) Use the median to split the data into two. ***Do not include the median in either side of data***. Find the median of each half. The median of the lower half is the lower quartile (Q1). The median of the upper half is the upper quartile (Q3).		$\frac{8+9}{2} = \frac{17}{2} = 8.5 = Q_3$	

Warm-up: Tuesday, August 3, 2021

1) Pick up Unit 6 Notes/HW packet on back table. ONLY take 1.

2) Get out syllabus paperwork. Turn in one sheet to basket on my desk.

3) Get out 3-ring binder.

4) Find your name on the list beside the calculators and pick yours up, if needed.

Measures of Center	
3. Median Measures the **center of the data. Put the numbers in order from least to greatest. Find the number that is in the center. *If there are two numbers in the center, average them together.*	2, 3, 5, 6, 6, 7, 8, 9, 12 6
Mode Measures the **center** of the data. The number that appears the most.	6
Mean Measures the **center** of the data. Calculated by adding up all of the numbers and dividing by the number of data.	$\frac{2+3+5+6+6+7+8+9+12}{9} = 6.\overline{4}$
Measures of Spread	
Range The **spread** of the data. Subtract the minimum from the maximum.	12 - 2 = 10
Interquartile Range The **spread** of the middle 50% of the data. Subtract the lower quartile from the upper quartile.	8.5 - 4 = 4.5

$IQR = Q_3 - Q_1$

$|5| = 5$ $|-5| = 5$

Mean Absolute Deviation

The **Mean Absolute Deviation (MAD)** helps us calculate on average how spread out the numbers are from the center (the mean).

Numbers that are close together will have a lower MAD than numbers that are far apart.

It is usually a good thing to have a low MAD – it means that your data is CONSISTENT.

To calculate the MAD:

1. Find the mean of the data.
2. Find the differences (subtract) between the mean and each data point.
3. Find the mean of the differences.

Find the MAD of each data set below.

1) 5, 9, 10, 4, 11 — Range: 7

	Data	Deviation from mean	
	5	|7.8 − 5|	2.8
	9	|7.8 − 9|	1.2
	10	|7.8 − 10|	2.2
	4	|7.8 − 4|	3.8
	11	|7.8 − 11|	3.2
Sum	39	Sum	13.2
Count	5	Count	5
Mean	7.8	MAD	2.64

positive

2) 3, 12, 10, 14, 8 — Range: 11

	Data	Deviation from mean	
	3	9.4 − 3	6.4
	12	9.4 − 12	2.6
	10	9.4 − 10	.6
	14	9.4 − 14	4.6
	8	9.4 − 8	1.4
Sum	47	Sum	15.6
Count	5	Count	5
Mean	9.4	MAD	3.12

3) 6, 12, 10, 9, 9

	Data	Deviation from mean	
Sum		Sum	
Count		Count	

Mean MAD

Which set of numbers seemed the closest together?

Which set of numbers had the smallest MAD?

4) 8, 10, 6, 9, 7

	Data	Deviation from mean	
Sum		Sum	
Count		Count	

Mean MAD

The farthest apart?

The largest MAD?

2

Classwork

1 The data below represents how many texts were sent by 8 freshman students in one day.

~~35, 56, 34, 44, 52, 12, 34, 45~~

12, 34, 34, 35, 44, 45, 52, 56

Rearrange in order: 12, 34, 34, 35, 44, 45, 52, 56

a) Use the set of data to find all of the following:

Minimum: 12 Maximum: 56

Range: 44 Mean: 39

Mode: 34 Median: 39.5 Q_2

Lower Quartile: 34 (Q_1) Upper Quartile: 48.5 (Q_3)

Interquartile Range (IQR): 14.5

$Q_3 - Q_1 = 48.5 - 34$

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2 The data below represents how many yards were thrown by a player on the football team during the fall homecoming game.

35, 56, 60, 60, 76, 80, 58, 45, 73, 57

Rearrange in order:_____

a) Use the set of data to find all of the following:

Minimum: _____ Maximum: _____

Range: _____ Mean: _____

Mode: _____ Median: _____

Lower Quartile: _____ Upper Quartile: _____

Interquartile Range (IQR): _____

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3 The figures below represents test scores from a student taking GSE Algebra at Wheeler High School.

88, 103, 68, 80, 54, 91, 88, 76

Rearrange in order:_____

a) Use the set of data to find all of the following:

Minimum: _____ Maximum: _____

Range: _____ Mean: _____

Mode: _____ Median: _____

Lower Quartile: _____ Upper Quartile: _____

Interquartile Range (IQR): _____