Data Analysis

Five Number Summaries

Minimum (MinX)	the smallest number in the data
1st quartile (Q^1)	the median of the lower half of the data
Median (Med)	the middle of the data
3rd quartile (Q^3)	median of the upper half of the data
Maximum (MaxX)	the largest number in the data

Other Data Analysis Terms

Mean($\bar{x}$)	$\sum x / n$ (where n is the number of pieces in the data)
Mode	the number that appears the most
Range	the difference between the minimum and the maximum
Standard Deviation(Sx or σx)	1. find the mean ($\bar{x}$) of the whole data set ($\sum x/n$) 2.subtract each number from the mean and square it. 3.Find the mean of the squared differences. Your σx is the square root of the new mean.
σx	is standard deviation of the whole population. At the end of calculation, divide by "n"
Sx	standard deviation of a sample of the data. At the end of calculation, you divide it by "n-1"

Data Analysis (cont)

Mean Absolute Deviation (MAD)	1. Find the mean of the data 2.Find the absolute difference between each value and the mean. Then find the mean of the absolute differences

SOCS

Shape	What is the *shape* of the graph?
SPUGS!	You can find the shape of the graph with a histogram of the data set
1.Symmetric	the graph is symmetrical
2. Peaks	unimodal (1 peak), bimodal (2 peaks), or multimodal (3 or more peaks)
3. Uniform	all of the data are the same value
4. Gaps	In a histogram, there is a section that has nothing.
5. Skewness	skewed left: the tail points left skewed right: the tail points right

Outliers	Are there any *outliers* in the data set?
Outliers are more of a yes or no question	
find the interquartile range, from Q^1 to Q^3. multiply it by 1.5 and subtract/add from the mean. That is the borderline. Anything greater than the border line is an outlier	

From now on, it will be separated based on whether or not there is an outlier or not.

Data Analysis (cont)

a = no outlier	b = outlier

Center	What is the *center* of the data set?
a	mean
b	median

Spread	What is the *spread* of the data set?
a	Standard Deviation
b	IQR, range, and five number summary

In the end, add an explanation to your data set, analyzing using all of the information

Simplified Algebraic Expressions

1.) No double signs	3x - 4 not 3x +- 4
2.) Variables are in Alphabetical order	3a + 8f - 5g not - 5g + 8f + 3a
3.) Exponents are in decreasing order	$- 2x^5 + 6y^3$ not $6y^3 - 2x^5$
4.) No coefficients of 1	y = 7 not 1y = 7
5.) No denominators of 1	x = 9 not x/1 = 9
6.) Variables before constants	x + 5 not 5+x

Tolerances

degree of error ➜	level of acceptability

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3 Types of Linear Equations

Conditional Equations	have exactly **one** solution
Identity Equations	have an **infinite** amount of solutions
Contradictory Equations	have **no** solutions

Functions

Yes a Function		Not a function	
x	y	x	y
0	5	0	4
1	4	3	**3**
2	3	3	**8**
3	2	7	4

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Frequency Tables

Relative	setting up to what part of wholes (decimals or percents)
Joint Relative Frequency	the section in blue
Marginal Relative Frequency	the section in red
Grand Total	the bottom right corner of the table

Frequency Table Example

Refer to Frequency Tables

7 step Algebraic Method for Word Problems

1.) **List** all important information
2.) **Assign** a variable
3.) Write an **expression**
4.) Write an **equation**
5.) **Solve** the equation

7 step Algebraic Method for Word Problems

1.) **List** all important information
2.) **Assign** a variable
3.) Write an **expression**
4.) Write an **equation**
5.) **Solve** the equation
6.) **Check** equation
7.) Write the answer as a **complete sentence**

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