Statistics - Lesson 1 -- Measures of Central Tendency

For our final lesson this year, you will be calculating some fundamental statistics from a set of data (numbers). The statistics you will be solving for are categorized as the Measures of Central Tendency and they are MEAN, MEDIAN AND MODE. I will also be including another statistic called RANGE.

WATCH THIS VIDEO FIRST:

www.youtube.com/watch?v=B1HEzNTGeZ4

Summary Notes:

**MEAN:** The mean is the “average” of the set of data. To find the Mean, add up all the numbers in the set of data and divide by how many numbers there are.

**Example:** 1 + 2 + 4 + 7 = 14  14 is the total. There are 4 numbers in the set of data, so 14 divided by 4.  \( \frac{14}{4} = 3.5 \) So the **MEAN** = \( 3.5 \)

**MEDIAN:** The median is the number in the middle. HOWEVER, BEFORE YOU CAN FIND THE MIDDLE NUMBER, YOU MUST PUT THE NUMBERS IN ORDER FROM LEAST TO GREATEST (small to big).

Example A - with an even amount of numbers in the set: 1, 5, 3, 4, 2, 0  
(six numbers in the set)

Example B - with an odd amount of numbers in the set: 16, 7, 28, 9, 12  
(5 numbers in the set)

**FIRST, PUT THE NUMBERS IN ORDER:**
Then, to find the middle number, you start crossing numbers off from each end until you get to the middle number or the final two numbers:

**Example A**

\[
\begin{array}{c}
0, 1, 2, 3, 4, 5 \\
1, 2, 3, 4 \\
2, 3 \\
\end{array}
\]

Since there are two numbers left, you add them up and divide by two to get the middle number:  
\[ 2 + 3 = 5 \quad 5 \text{ divided by } 2 = 2.5 \]

2.5 is the MEDIAN

**Example B**

\[
\begin{array}{c}
7, 9, 12, 16, 28 \\
9, 12, 16 \\
12 \\
\end{array}
\]

Since there is only one number left, it is the middle number, so the **MEDIAN** is 12
**MODE:** The number seen the MOST in the set of data. If all the numbers are seen the same amount, then there is **NO MODE.** There are different answers for the **MODE** depending on the data provided. See the examples below for how to find **MODE.**

Example:

9, 3, 4, 5, 3, 2, 1, 7    ----     1, 2, 3, 3, 4, 5, 7, 9  The number seen the MOST is 3.

So, the **MODE = 3**

Example:

43, 34, 23, 35, 34, 23     ---   23, 23, 34, 34, 35, 43  The numbers seen the MOST are 23 & 34

So, the **MODE is 23, 34**

Example:

1, 2, 3, 4, 5, 6, 7, 8 ---- None of the numbers repeats - So, the answer is **NO MODE!**

**RANGE:** The RANGE is the difference from the biggest number in the data to the smallest number in the data.

Example:  12, 25, 24, 56, 81

PUT IN ORDER FIRST:  12, 24, 25, 56, 81  To calculate the **RANGE:** subtract the smallest number from the biggest number (big - little):  81 - 12 = 69  **RANGE = 69**

To get an idea of this, consider the height of students in your grade and Lebron James:

Students:  

5’4”, 5’6”, 4’8”, 5’2”

4’8”, 5’2”, 5’4”, 5’6”, 6’9”

Lebron James:  

6’9”

The RANGE from the tallest (Lebron) to the shortest (student) = 6’9” - 4’8” = 2’1”

The difference being 2 feet 1 inch from the shortest student to the height of Lebron!
For each problem, find the MEAN, MEDIAN, MODE AND RANGE. ***Remember to put the numbers in order first from least to greatest!

1) 12, 15, 19, 24, 15
   
   Mean = 
   Median = 
   Mode = 
   Range = 

2) 85, 77, 98, 100, 65, 88
   
   Mean = 
   Median = 
   Mode = 
   Range = 

3) Find the MEAN, MEDIAN, MODE AND RANGE OF ALL THE AGES OF YOUR FAMILY!

   EXAMPLE: mom = 52, dad = 53, sister = 18, brother = 14 and myself = 12
   Write your Data set = 12, 14, 18, 52, 53 and then find each.

   If you do not want to tell your family’s ages, you can use these numbers.
Please note: There will not be any new assignments after this week. If you have not completed any of the previous assignments, you have until the end of next week to do so. As of June 17th, I will have inputted all final comments into SchoolTools. If you notice by the 17th you have not been given credit for an assignment, please let me know.

THANK YOU FOR ALL YOUR HARD WORK AND FOR STICKING WITH THE ON-LINE LEARNING! YOU AND YOUR PARENTS ARE TRULY WONDERFUL AND I GREATLY APPRECIATE EVERYTHING YOU HAVE DONE!

I look forward to hopefully seeing you all again in September!

Till then, YOU ARE ALL TRULY AWESOME AND I HAVE HAD A GREAT TIME GETTING TO KNOW YOU AND AM PRIVILEGED TO HAVE BEEN YOUR TEACHER!

Hope everyone stays safe and has a joyous and happy summer!

Mrs. Milligan