





The best way to analyze statistics of one variable is through the three measures of central tendency: mean, median and mode. The three measures of central tendency give three different values (numbers) that all of the data tends to cluster around. **Read through the following terms and examples.**

Measure of Central Tendency	Description	How to calculate it
<b>Mean</b> <i>class average.</i>	The sum of all data points, divided by the number of data points. Also called 'average' "batting average"	<ol style="list-style-type: none"> <li>1. <u>Add</u> up all the data points.</li> <li>2. <u>Count</u> how many data points there are.</li> <li>3. <u>Divide</u> your answer from 1 by your answer from 2. (sum of data/number of data points)</li> </ol>
<b>Median</b>	The <u>middle</u> number in a set of data	<ol style="list-style-type: none"> <li>1. List all the numbers from smallest to largest</li> <li>2. Count over until you find the middle number.</li> <li>3. If there are two middle numbers, then find the average of those two numbers.</li> </ol>
<b>Mode</b>	The number that show up most <u>frequently</u> in a data set	<ol style="list-style-type: none"> <li>1. List all the numbers from smallest to largest</li> <li>2. Find the number that appears the most. This is the mode. Note: you can have more than one mode if there is a tie for most frequent.</li> </ol>

**Summary:** Mean is the average, Median is the middle number, Mode is the most frequent number.

**Example:** Two classes that had the same exam had the following results. Determine the mean, median and mode for each data set.

Class A: 71, 82, 55, 76, 66, 71, 90, 84, 95, 64, 71, 70, 83, 45, 73, 51, 68

Class B: 54, 80, 12, 61, 73, 69, 92, 81, 80, 61, 75, 74, 15, 44, 91, 63, 50, 84

**Solution for Class A:**

$$\text{Mean} = \frac{71 + 82 + 55 + 76 + 66 + \dots + 51 + 68}{17} = \frac{1215}{17} = 71.5$$

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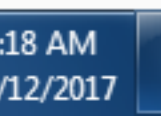
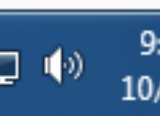
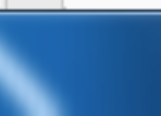
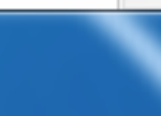
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Mean  $\rightarrow$  All marks added

$$= \frac{1159}{18} = 64.4$$

Therefore, the mean is \_\_\_\_\_, the median is \_\_\_\_\_, and the mode is \_\_\_\_\_.

2. Which class did better on the exam? Refer to the mean, median and mode in your answer.

3. Find the measures of central tendency (mean, median & mode) for each of the following data sets.

a) Find the measures of central tendency. 16, 35, 36, 2, 28, 17, 22, 4, 35, 16

mean = \_\_\_\_\_ median = \_\_\_\_\_ mode = \_\_\_\_\_

b) Find the measures of central tendency. 12, 15, 13, 10, 15, 13, 12, 10, 13, 16

mean = \_\_\_\_\_ median = \_\_\_\_\_ mode = \_\_\_\_\_

c) Find the measures of central tendency. 7, 13, 21, 21, 21, 21, 7, 10, 28, 11

mean = \_\_\_\_\_ median = \_\_\_\_\_ mode = \_\_\_\_\_

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Median

~~12, 15, 44, 50, 54, 61, 61, 63, 69, 73, 74, 75, 80, 80~~

$$\begin{array}{r} 69 + 73 \\ \hline 2 \\ \hline = 71 \end{array}$$

~~81~~  
~~84~~  
~~91~~  
~~92~~

Mode = most frequent  
= 61 and 80



Therefore, the mean is 64.4, the median is 71, and the mode is 61, 80

2. Which class did better on the exam? Refer to the mean, median and mode in your answer.

class A mean 71.5  
 class B mean 64.4  $\therefore$  class A did better

3. Find the measures of central tendency (mean, median & mode) for each of the following data sets.

a) Find the measures of central tendency. 16, 35, 36, 2, 28, 17, 22, 4, 35, 16

mean = \_\_\_\_\_ median = \_\_\_\_\_ mode = \_\_\_\_\_

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mean = \_\_\_\_\_ median = \_\_\_\_\_ mode = \_\_\_\_\_

c) Find the measures of central tendency. 7, 13, 21, 21, 21, 21, 7, 10, 28, 11

mean = \_\_\_\_\_ median = \_\_\_\_\_ mode = \_\_\_\_\_

4. Create your own data set of ten **different** numbers (*Any numbers!*) that have a mean and median that both equal 10. Show your calculations for both the mean and median once you have your data set.

My data set: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

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