ALMS8

TAILORED LEARNING, PERSONALIZED PROGRESS

SUPPLEMENTARY MODULE 1

Determine Measures of Central Tendency of Ungrouped Data

GRADE 8

malms8.online

2 DRAW CONCLUSIONS FROM STATISTICAL DATA USING THE MEASURES OF CENTRAL TENDENCY

Welcome!

Hello, awesome learners! If you're finding measures of central tendency a bit tricky, don't worry—we've got your back! This supplementary material is here to give you an extra boost. Together, we'll dive into real-life examples, practice, and polish those skills. Join us for a quick and powerful journey as we explore measures of central tendency with a focus on understanding and mastering these math superpowers. Let's conquer math challenges together and make it an adventure worth enjoying!

LEARNING OBJECTIVES

1. Practice identifying appropriate statistical methods to calculate measures of central tendency accurately for different types of ungrouped data sets
2. Engage in guided exercises and activities aimed at enhancing their proficiency in using spreadsheet software to organize data
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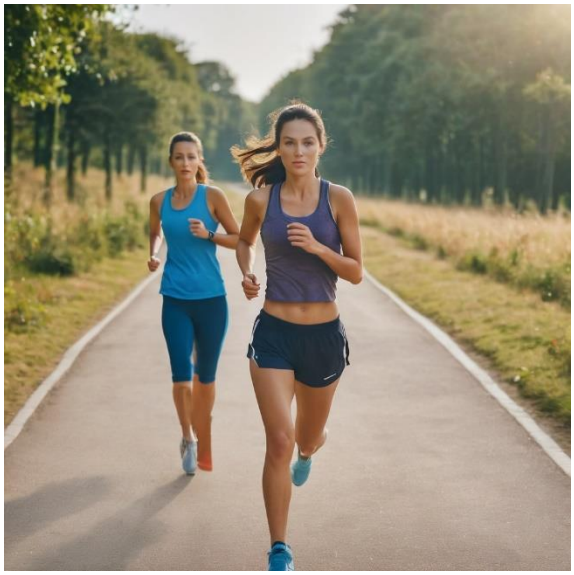
Central Tendency

In statistics, measures of central tendency are crucial for summarizing datasets. The mean, or average, represents the arithmetic center of the data; the median is the middle value when the data is ordered, and the mode identifies the most frequently occurring value, providing insight into the data's predominant characteristics. Together, these measures provide a comprehensive understanding of the central tendencies of ungrouped data distributions.

Example 1:



Consider a runner who is training for a 10-kilometer race. Her coach requires that she run an average distance of 15 km a day. Over a two-week period, the runner logged the following distances (in km) on her daily runs: What is the a) average distance, b) median distance, and c) the distance that she ran most often?

Su	M	T	W	Th	F	Sa	Su	M	T	W	Th	F	Sa
15	16	14	22	15	10	30	0	15	20	20	24	5	32

a) To determine the average daily distance, the calculation would be:

$$Mean = \frac{15 + 16 + 14 + 22 + 15 + 10 + 30 + 0 + 15 + 20 + 20 + 24 + 5 + 32}{14}$$

$$Mean = \frac{238}{14}$$

$$\boldsymbol{Mean = 17\ km}$$

b) To determine the median distance, the calculation would be:

0	5	10	14	15	15	15	16	20	20	22	24	30	32

$$Median = \frac{15 + 16}{2}$$

$$Median = \frac{31}{2}$$

$$\boldsymbol{Median = 15.5\ km}$$

c) To determine the distance that she ran most often, the calculation would be:

0	5	10	14	15	15	15	16	20	20	22	24	30	32

Mode = 15

To double-check our answer, we will use the Excel software. Upon doing so, the results show that the algebraic and graphic computation have the same results. **Therefore, the mean is 17 km, the median is 15.5 km, and the mode is 15 km.**

#	Distances
1	0
2	5
3	10
4	14
5	15
6	15
7	15
8	16
9	20
10	20
11	22
12	24
13	30
14	32
Mean:	17
Median:	15.5
Mode:	15

Table 1.1. Excel Calculation