

KEGN.AZMACH ANDARGE W/GIORGIS MEMORIAL SCHOOL
MATHEMATICS NOTE FOR GRADE -7
THE MEAN, MODE, MEDIAN AND
RANGE OF DATA



The mean, mode and median are called measure of central tendency

✓ **Range** is called measure of dispersion

4.3.1 The mean

Definition 4.1 The mean of data is the sum of all values divided by the number of values

$$\text{Mean } \bar{x} = \frac{\text{sum of all values}}{\text{number of values}}$$

Example 1: Find the mean of 6, 14, 10, 14, 14, 12, 8 and 2

Solution: The sum of all values is $6+14+10+14+14+12+8+2 = 80$

The number of values is 8

Therefore: $\text{Mean} = \frac{\text{sum of all values}}{\text{number of values}} = \frac{80}{8} = 10$

The mean is 10.

Example 2. The mean of three numbers is 10 and the mean of four other numbers is 16. What is the mean of all seven numbers?

Solution: for the first set of data

$$\text{Mean} = \frac{\text{sum of all values}}{\text{number of values}}$$

Sum of values = mean $\times$ number of values

$$\text{Sum of values} = 10 \times 3 = 30$$

- For the second set of data
 - Similarly sum of values = mean $\times$ number of values

$$= 16 \times 4$$

$$= 64$$

- The total sum = $30 + 64 = 94$
And total number of values is $3 + 4 = 7$

$$\begin{aligned} \diamond \text{ Therefore, mean of all seven numbers} &= \frac{\text{total sum}}{7} \\ &= \frac{94}{7} \\ &= 13.4 \end{aligned}$$

Therefore, the mean of all seven numbers is 13.4

HOME TAKEN EXERCISE

EXERCISE 4E

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1- a,c,e

2, 4,6,7 and 10

4.3.2 the mode

Definition 4.2 the mode of a set of data is the value which occurs most frequently.

NOTE:

- ✚ A data that has a unique mode is called **unimodal**.
- ✚ A set of data that has two mode is called **bimodal**
- ✚ A set of data that has three mode is called **trimodal**
- ✚ Each value occurs only once, so there is **no mode** at all.

Example: find the mode of these set of data.

- a. 8, 16, 18, 20, 24, 32, 60, and 20
- b. 300, 400, 150, 900, 250, 350

Solution:

- a. The mode is 20 because 20 occurs two times and called bimodal. Why?
- b. there is no mode, why?

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EXERCISE 4F

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1 a – d

4.3.3. the median

Definition: **the median is the middle value when the data is arranged in ordered size. (increasing or decreasing) order.**

Example: Find the median of the population function whose values are

- a. 6 12 2 0 4 10 4 6
- b. 18 4 2 18 14 8 4 6 12

Solution:

- a. Arranged in increasing order

0 2 4 4 6 10 12

Eight data items → **even** items

➤ **So, the median of the even items** $= \frac{4+6}{2} = \frac{10}{2} = 5$

Therefore the median is 5

Solution:

b. Arranged in increasing order

2 4 4 6 8 12 14 18 18

Nine data items → **odd** items

➤ **So**, the median of the odd items is the mid value which is **8**
Therefore the median is 8

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EXERCISE 4G ALL