

SNS ACADEMY
MATHEMATICS-GRADE 7
3- DATA HANDLING



I. Representative Values

An "average" is a number that represents the central tendency of a group of data.

Averages lie between the highest and lowest values in a data set.

Different types of data require different forms of representative values.

The arithmetic mean, mode, and median are all measures of central tendency.

II. Arithmetic Mean

The most common representative value.

Calculated by summing all observations and dividing by the number of observations.

Formula: Mean = (Sum of all observations) / (Number of observations)

The mean always lies between the greatest and smallest observations in a data set.

III. Range

Measures the spread of observations in a data set.

Calculated by subtracting the lowest observation from the highest observation.

Formula: Range = Highest observation - Lowest observation

IV. Mode

Another measure of central tendency.

The observation that occurs most often in a data set.

A data set can have one mode, more than one mode, or no mode.

Useful for determining the most frequent occurrence, like popular shirt sizes.

V. Median

Another measure of central tendency.

The middle value in a data set when the data is arranged in ascending or descending order.

Divides the data into two equal halves, with half the observations above and half below it.

Most easily found when the number of observations is odd.

VI. Bar Graphs

A visual representation of numbers using bars of uniform width.

The length of the bars depends on the frequency and the chosen scale.

Choosing an appropriate scale is important for clear representation.

VII. Double Bar Graphs

Used to compare two collections of data side-by-side.

Helpful for making comparisons between two related data sets at a glance, such as performance over time or comparisons between different categories.

VIII. Probability (Mentioned in supporting text)

The likelihood or chance of an event occurring.

Events can be certain, impossible, or may or may not occur.

Probability can range from 0 to 1 (or 0% to 100%).

Mean

The **mean** is the average.

1. Add up all the values to find a total
2. Divide the total by the number of values you added together.

$$2+2+3+5+5+7+11 = 35$$

(There are 7 values)

$$35 \div 7 = 5$$

→ The **mean** is 5

Median

The **median** is the middle value.

1. Write the values in numerical order
2. The median is the middle value. If there are 2 values in the middle, find the average of these 2 numbers.

$$2, 2, 3, 5, 7, 11$$

→ The **median** is 5

Mode

The **mode** is the most frequent value.

1. Count how many of each value appears.
2. The mode is the value that appears the most often.

Note: You can have more than one mode.

$$2, 2, 3, 5, 5, 7, 11$$

→ The **modes** are 2 and 5

Range

The **range** is the difference between the lowest and highest value

1. Subtract the lowest value from the highest value in the data set

$$2, 2, 3, 5, 5, 7, 11$$
$$11 - 2 = 9$$

→ The **range** is 9