Measures of Central Tendency of Ungrouped Data

Mean (Arithmetic Mean)

- the most commonly used measure of central tendency
- the sum of measures x divided by the number N of measures in a variable

To find the mean of an ungrouped data, use the formula

$$\bar{x} = \frac{\Sigma x}{N}$$

where Σx = the summation of x
N = number of values of x

Median: the middle value in a set of data arranged according to size/magnitude (either increasing or decreasing)

To find the median of an ungrouped data, use the formula

$$\tilde{x} = \frac{1}{2}(N+1)th$$

Mode

- the measure or value which occurs most frequently in a set of data
- the value with the greatest frequency

To find the mode for a set of data:

1. select the measure that appears most often in the set;
2. if two or more measures appear the same number of times, then each of these values is a mode; and
3. if every measure appears the same number of times, then the set of data has no mode.

Practice Exercises

A. Find the mean, median, and mode of each set of data.
   1. 29, 34, 37, 22, 15, 38, 40
   2. 5, 6, 7, 7, 9, 9, 9, 10, 14, 16, 20
   3. 82, 61, 93, 56, 34, 57, 92, 53, 57
   4. 26, 32, 12, 18, 11, 12, 15, 18, 21

B. Solve each problem completely.
   1. The mean of 12 scores is 68. If two scores, 70 and 63, are removed, what is the mean of the remaining scores?
   2. Athena got the following scores during the first quarter quizzes: 12, 10, 16, x, 13, and 9. What must be the value of x so that the median score is 11?
   3. The mean weight of Loida, Jackie, and Jen is 55 kilograms.
      a. What is the total weight of these girls?
      b. Julie weighs 60 kilograms. What is the mean weight of the four girls?

Problem Set

A. Find the mean, median, and mode of each set of data.
   1. 25, 33, 39, 20, 17, 35, 43
   2. 4, 7, 8, 8, 10, 9, 9, 10, 17, 15, 20
   3. 80, 63, 90, 59, 35, 56, 91, 54, 57
   4. 24, 30, 14, 16, 10, 13, 13, 20, 21

B. Solve each problem completely.
   1. The mean of 11 scores is 65. If two scores, 73 and 60 are removed, what is the mean of the remaining scores?
   2. Berna got the following scores during the second quarter quizzes: 11, 13, 17, x, 12, and 8. What must be the value of x so that the median score is 12?

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