

AVERAGE

An *average* is a statistic that is used to summarize data. The most common type of average is *arithmetic mean*. The average (the arithmetic mean) of a list of n numbers is equal to the sum of the numbers divided by n . For example, the mean of 2, 3, 5, 7, and 13 is equal to

$$(2+3+5+7+13):5=6$$

When the average of a list of n numbers is given, the sum of the numbers can be found. For example, if the average of six numbers is 12, the sum of these six numbers is 12×6 , or 72.

The *median* of a list of numbers is the number in the middle when the numbers are ordered from greatest to least or from least to greatest. For example, the median of 3, 8, 2, 6, and 9 is 6 because when the numbers are ordered 2, 3, 6, 8, 9, the number in the middle is 6. When there is an even number of values, the median is the same as the mean of the two middle numbers. For example, the median of 6, 8, 9, 13, 14, and 16 is $(9+13):2=11$.

The *mode* of a list of numbers is the number that occurs most often in the list. For example, 7 is the mode of 2, 7, 5, 8, 7, and 12. The numbers 10, 12, 14, 16, and 18 have no mode and the numbers 2, 4, 2, 8, 2, 4, 7, 4, 9, and 11 have two modes, 2 and 4.

Problem 1: In a group of 10 students, 7 are 13 years old and 3 are 17 years old. What is the average (arithmetic mean) age of these 10 students?

Problem 2: If the average (arithmetic mean) of 5 consecutive even numbers is n , what is the median of these 5 integers?

Problem 3: What is the median of divisors of 60?

Problem 4: These are the results of a sport competition on broad jumping:

Sportsman A	7,2 m
Sportsman B	7,0 m
Sportsman C	7,9 m
Sportsman D	7,2 m
Sportsman E	7 m
Sportsman F	7,5 m

What is the average, the median, and the mode of these results?

Problem 5: In a group of 5 students, scores on a certain test ranged from a low of 60 to a high of 100. If the median score was 75 and the average (arithmetic mean) of the scores was 80, which of the following could be the other two scores?

- I. 66 and 99
- II. 70 and 90
- III. 76 and 89

- (A) None
- (B) I only
- (C) II only
- (D) I and II only
- (E) I, II and III