

► Averages

An average, also called an **arithmetic mean**, is a number that *typifies* a group of numbers, a measure of central tendency. You come into contact with averages on a regular basis: your bowling average, the average grade on a test, the average number of hours you work per week.

To calculate an average, add up the number of items being averaged and divide by the number of items.

Example: What is the average of 6, 10, and 20?

Solution: Add the three numbers together and divide by 3: $\frac{6 + 10 + 20}{3} = 12$

Shortcut

Here's a shortcut for some average problems:

- Look at the numbers being averaged. If they are equally spaced, like 5, 10, 15, 20, and 25, then the average is the number in the middle, or 15 in this case.
- If there is an even number of such numbers, say 10, 20, 30, and 40, then there is no middle number. In this case, the average is halfway between the two middle numbers. In this case, the average is halfway between 20 and 30, or 25.
- If the numbers are almost evenly spaced, you can probably estimate the average without going to the trouble of actually computing it. For example, the average of 10, 20, and 32 is just a little more than 20, the middle number.

Sometimes you will be asked to find a **weighted average**, which is an average made when some data points occur more frequently than other data points.

Example: Mr. Beasley gave a test in his English class. Five students scored 72, two students scored 78, and three students scored 86. What was the average score for this test?

1. First, you must calculate the total number of data points, which in this question would be the number of students:

There were 10 students in this class ($5 + 3 + 2 = 10$).