SAT Math Must-Know Vocabulary

This list of math vocabulary words includes math terms that appear repeatedly on the SAT. While there are more math words that you need to know besides these (for example: “tangent” and “perpendicular”), the following are some of the most frequently appearing terms. Having a good vocabulary is helpful for math too!

**integers**
Integers are numbers without a fractional part (and that is why they are often called the whole numbers). Integers include 1, 2, 3, ... (the counting numbers) along with 0, −1, −2, −3, ...

**remainder**
When an integer is divided by another, the remainder is the integer amount that is left over. For example, when 66 is divided by 7, the remainder is 3, since 7 goes into 66 a total of 9 times, with 3 left over: $66 = 7 \times 9 + 3$.

**even integers**
Even integers can be divided by two without a remainder. The even integers include 0, 2, 4, 6, 8, 10, 12, ..., $2^{753}$, ... along with $-2, -4, -6, \ldots, -37954, \ldots$.

**odd integers**
Odd integers can not be divided by two without a remainder. The odd integers include 1, 3, 5, 7, 9, 11, ..., $2^{452} + 1$, ... along with $-1, -3, -5, \ldots, -37955, \ldots$.

**positive, negative**
A positive number is greater than zero, and a negative number is less than zero. Zero itself is neither positive nor negative. Note that a negative number raised to an even power is positive, and when raised to an odd power is negative. For example, $(-1)^{374} = 1$ but $(-1)^{373} = -1$.

**multiple**
A multiple of a number is the result of multiplying that number by any integer. For example, the multiples of 15 include 15, 30, 45, 60, ... but also 0, −15, −30, ...

**factor**
A factor of a number is any integer that can divide that number without a remainder. For example, the factors of 12 are 1, 2, 3, 4, 6, and 12; the factors of 29 are just 1 and 29.

**prime**
A prime number is a positive integer that has only two factors: itself and 1. The prime numbers include 2, 3, 5, 7, 11, ... but do not include 1 (the number 1 only has one factor, not two). The prime factors of a number are the factors of the number that also are prime. For example, the prime factors of 12 are 2 and 3 and the only prime factor of 29 is 29.
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average (arithmetic mean)
The average (also called the “mean” or “arithmetic mean”) of a group of numbers is the sum of the numbers divided by the number of numbers. For example, the average of the group of numbers \{2, 4, 9\} is \((2 + 4 + 9)/3 = 5\). A typical SAT question might read: “The average of 2, \(x\), 6, and 12 is 7. What is \(x\)?” In this case, the average is the sum of the numbers divided by 4. We can write: \((2 + x + 6 + 12)/4 = 7 \Rightarrow x + 20 = 28 \Rightarrow x = 8\).

median
The median of a group of numbers is the number in the middle of the group after the group has been numerically sorted. For example, the median of the numbers \{9, 2, 4\} is 4, since when sorted, the numbers are \{2, 4, 9\}, and 4 is in the middle. For groups with an even number of numbers, the median is the average of the two middle numbers. For example, the median of the numbers \{1, 1, 2, 4, 4, 9\} is \((2 + 4)/2 = 3\).

mode
The mode of a group of numbers is the number or numbers which appear most often (there can be more than one mode for a given group). For example, the mode of the group of numbers \{1, 2, 3, 3, 3, 4, 5, 6, 6, 7, 8, 8\} is both 3 and 6.

in terms of
You are often asked on the SAT to solve for some variable “in terms of” another variable or variables. For example, if \(6a + 12b = 3a + 6b - 9c + 15\), and you are asked to solve for \(a\) in terms of \(b\) and \(c\), then simply solve for \(a\) with all other variables and numbers on the other side of the equation. Here, you would get \(3a = 15 - 6b - 9c\) so that \(a = 5 - 2b - 3c\).

less, fewer
A common SAT question type involves translating from words into an algebraic equation that you can solve. When you see “less” or “fewer” you should think subtraction. For example, “\(y\) is three less than twice \(x\)” is equivalent to \(y = 2x - 3\). Another example: “Aubrey has 6 fewer cabbages than Bill does” could be written in equation form as \(A = B - 6\). Note that the number or expression that comes before “less” or “fewer” appears after the minus sign in the equivalent expression.
The following words are rarely seen; however, they define various concepts that you are expected to know on the SAT.

**rational**
A rational number is any number that can be written as a fraction: a ratio of two integers. Rational numbers include 1/2, 3/4, 5 (since 5 = 5/1), 22/7, 1/3, and so on. These numbers can always be written as a finite decimal or as an infinite decimal that repeats. For example, 2/5 = 0.4, 7/11 = 0.6363, and 22/7 = 3.142857.

Important rational numbers to know from memory as decimals are: 1/2 = 0.5, 1/3 = 0.33, 1/4 = 0.25, 1/5 = 0.2, 2/3 = 0.66, and 3/4 = 0.75.

**real**
The real numbers are all the numbers on the number line, including the integers, the rational numbers, and everything else, which includes for example the irrational numbers such as √2 and π. Not to be confused with the fake numbers.

**domain**
The domain of a function is all of the possible values that can be used as input to the function, so that the function returns a real value. If the function is written as y = f(x), the domain is all possible values of x such that y is a real number. For example, the domain of the function f(x) = 1/(1 – x) is all real numbers except for x = 1, since if x = 1, the denominator is 0 and the function “blows up”. The domain of f(x) = √x is all positive real numbers, along with zero. (Why?)

**range**
The range of a function is all of the possible values that can be generated (output) by the function. If the function is written as y = f(x), then the domain is all possible values of y. For example, the range of the function f(x) = |x| is all positive real numbers along with 0. Occasionally, “range” is applied to a set of numbers, in which case it means the positive difference between the largest member of the set and the smallest member. For example, the range of the set {6, 8, 1, 4} is 8 – 1 = 7.