



TERMS

A term is a single mathematical expression.

It may be a single number (positive or negative), a single variable (a letter), several variables multiplied but never added or subtracted. Some terms contain variables with a number in front of them. The number in front of a term is called a coefficient.

Examples of single terms:

$3x$ is a single term. The "3" is a coefficient. The "x" is the variable.

$-5x^2y^3z^4$ is also a single term.

The "-5" is the coefficient. " $x^2y^3z^4$ " are the variables comprising the term.

12 is a single term.

It is simply a numerical term called a constant.

w is a single term too.

It is a single variable term and since there is only one "w" it has an implied coefficient of 1 .

We join terms together with addition to create expressions.

$5x + 7y$ is a two termed expression.

The $5x$ is one term and the $7y$ is the second term. The two terms are separated by a plus sign.

$7x^2y^3 - 2xy^4 + 7$ is a three termed expression.

$7x^2y^3$ is one term, $-2xy^4$ is the second term, and 7 is the third term.

The coefficient of the first term is 7.

The coefficient of the second term is *negative 2*.

The third term is a constant, so it has no coefficient.

Like Terms

"Like terms" are terms which have variables which look *EXACTLY* alike.

$3x^2$ and $-7x^2$ are "like terms" because both terms have the variable x^2

$5x^2y^6z^5$, $13x^2y^6z^5$, and $-21x^2y^6z^5$ are "like terms" because all of the terms have the variables " $x^2y^6z^5$ " in them.

Combining Like Terms

To combine "like terms", combine the coefficients of terms which look exactly alike. If you start with several terms separated by addition and subtraction signs, your answer should also contain addition and subtraction signs based on the signs obtained from doing the arithmetic.

Combine like terms:

$$3x^2 + 2x + 9 - 2x^2 + 5x - 3$$

$$\begin{aligned} & 3x^2 + 2x - 9 - 2x^2 + 5x - 3 \\ & (3 - 2)x^2 + (2 + 5)x + (-9 - 3) \\ & 1x^2 + 7x + (-12) \\ & 1x^2 + 7x - 12 \end{aligned}$$

You may be required to perform some other algebraic operations before you are ready to combine like terms.

Simplify. Combine like terms:

$$-5(2x^3 - 3x^2 + 1) + 2(-2x^3 + 5x^2 - 1)$$

Distribute the -5 into the first parentheses and multiply.
Do the same with the 2 in front of the second parentheses.

$$\begin{aligned} & -5(2x^3) - 5(-3x^2) - 5(1) + 2(-2x^3) + 2(5x^2) + 2(-1) \\ & -10x^3 + 15x^2 - 5 - 4x^3 + 10x^2 - 2 \end{aligned}$$

Now combine like terms,

$$\begin{aligned} & (-10 - 4)x^3 + (15 + 10)x^2 + (-5 - 2) \\ & \mathbf{-14x^3 + 25x^2 - 7} \end{aligned}$$