[T7-05-11-13]

Vocabulary

The following includes vocabulary that we use when talking about mathematics.

à Expression

An expression is any meaningful combination of mathematical symbols. Examples of expressions include

$$2x,\ 5x+7,\ 2+3,\ 3x^2y-2xy,\ \frac{x+y^2}{2},\ x+\frac{1}{3},\ \frac{3x+y^2}{2\cdot 3}$$

and if $a \neq 0$ and $b > 0$,

$$\frac{2}{a},\ \frac{3x+7}{a},\ \frac{1}{b},\ 3+\frac{1}{b+2},\ \frac{2}{b+5}$$

à Equation

An equation is a statement that two expressions are equal. Examples of equations include

$$x=2,\ x+5=-8,\ 3x-16=2x+1,\ x+5=\frac{1}{2},\ x-2=\frac{2x}{3+5}$$

à Terms

The expression $3x+5$ contains two terms, $3x$ and 5. The expression $4x+2y-7$ contains three terms, $4x$, $2y$, and 7. The parts of an expression which are separated from one another by plus or minus signs are called the *terms* of that expression.

Be careful to distinguish terms from factors. The expression abc, which means the product of a, b, and c, consists of one term but has several factors.

à Like Terms

In a term that contains a letter, $5x$ for example, the letter is referred to as a *literal factor*. Terms which have exactly the same literal factors raised to exactly the same exponents or no literal factors at all are called *like terms.*

Examples of pairs of like terms are

3 and 5, $3x$ and $7x$, $2x$ and x, x and x, $3xy$ and $2xy$, $5x^2$ and $2x^2$, $3x^2yz^3$ and $16x^2yz^3$.

Examples pairs of terms that are *not* like terms are

$3x$ and 7, $2x$ and $2y$, x and y, $3xy$ and $2x^2y$, $5x$ and $5x^2$, $3xyz^3$ and $16x^2yz^3$.

à **Coefficient**

In an indicated product such as $5xy$ the factor 5 is referred to as the *numeric coefficient* of the term. Any factor in a product may be considered the coefficient of the other factors. In abc, for example, the factor b is the coefficient ac. It is the numeric coefficient that we shall need to refer to most frequently in our early study of algebra, and for simplicity we shall use simply the word "coefficient" to refer to it.

à **Combining Like Terms**

Like terms in an expression may be combined into a single term by adding or subtracting their coefficients, as indicated by the signs, keeping the identical literal factors unchanged. Only like terms can be combined by addition and subtraction.

Some of the above was taken from *First Course in Algebra*, Arthur W. Weeks & Jackson B. Adkins, Bates Publishing, Sandwich, MA.