Vocabulary

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Use the vocabulary words and definitions below as a reference for this unit.

coefficient ..... the number that multiplies the variable(s) in an algebraic expression
Example: In $4xy$, the coefficient of xy is 4.
If no number is specified, the coefficient is 1.

conjugate ..... if $x = a + b$, then $a - b$ is the conjugate of x
Example: The expressions $(a + \sqrt{b})$ and $(a - \sqrt{b})$ are conjugates of each other.

decimal number ..... any number written with a decimal point in the number
Examples: A decimal number falls between two whole numbers, such as 1.5, which falls between 1 and 2. Decimal numbers smaller than 1 are sometimes called *decimal fractions*, such as five-tenths, or $\frac{5}{10}$, which is written 0.5.

denominator ..... the bottom number of a fraction, indicating the number of equal parts a whole was divided into
Example: In the fraction $\frac{2}{3}$ the denominator is 3, meaning the whole was divided into 3 equal parts.

digit ..... any one of the 10 symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9

distributive property ..... the product of a number and the sum or difference of two numbers is equal to the sum or difference of the two products
Examples: $x(a + b) = ax + bx$
$5(10 + 8) = 5 \bullet 10 + 5 \bullet 8$

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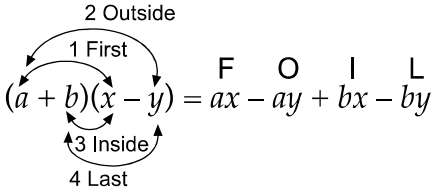
expression ..... a mathematical phrase or part of a number sentence that combines numbers, operation signs, and sometimes variables
Examples: $4r^2$; $3x + 2y$; $\sqrt{25}$
An expression does *not* contain equal (=) or inequality (<, >, ≤, ≥, or ≠) signs.

factor ..... a number or expression that divides evenly into another number; one of the numbers multiplied to get a product
Examples: 1, 2, 4, 5, 10, and 20 are factors of 20 and $(x + 1)$ is one of the factors of $(x^2 - 1)$.

FOIL method ..... a pattern used to multiply two binomials; multiply the first, outside, inside, and last terms:

F **F**irst terms
O **O**utside terms
I **I**nside terms
L **L**ast terms.

Example:



fraction ..... any part of a whole
Example: One-half written in fractional form is $\frac{1}{2}$.

irrational number ..... a real number that cannot be expressed as a ratio of two integers
Example: $\sqrt{2}$

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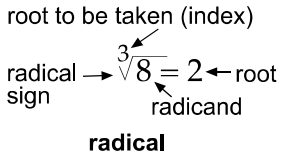
like terms ..... terms that have the same variables and the same corresponding exponents
Example: In $5x^2 + 3x^2 + 6$, the like terms are $5x^2$ and $3x^2$.

numerator ..... the top number of a fraction, indicating the number of equal parts being considered
Example: In the fraction $\frac{2}{3}$, the numerator is 2.

perfect square ..... a number whose square root is a whole number
Example: 25 is a perfect square because 5 x 5 = 25.

product ..... the result of multiplying numbers together
Example: In 6 x 8 = 48, the product is 48.

radical ..... an expression that has a root (square root, cube root, etc.)
Example: $\sqrt{25}$ is a radical
Any root can be specified by an index number, *b*, in the form $\sqrt[b]{a}$ (e.g., $\sqrt[3]{8}$).
A radical without an index number is understood to be a square root.



radical

radical expression ..... a numerical expression containing a radical sign
Examples: $\sqrt{25}$ $2\sqrt{25}$

radical sign ($\sqrt{\ }$) ..... the symbol ($\sqrt{\ }$) used before a number to show that the number is a *radicand*

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rationalizing the denominator ..... a method used to remove or eliminate radicals from the denominator of a fraction

rational number ..... a number that can be expressed as a ratio $\frac{a}{b}$, where a and b are integers and $b \neq 0$

simplest radical form ..... an expression under the radical sign that contains no perfect squares greater than 1, contains no fractions, and is not in the denominator of a fraction
Example: $\sqrt{27} = \sqrt{9 \bullet 3} = \sqrt{9} \bullet \sqrt{3} = 3\sqrt{3}$

simplify an expression ..... to perform as many of the indicated operations as possible

square root ..... a positive real number that can be multiplied by itself to produce a given number
Example: The square root of 144 is 12 or $\sqrt{144} = 12$.

term ..... a number, variable, product, or quotient in an expression
Example: In the expression $4x^2 + 3x + x$, the terms are $4x^2$, $3x$, and x.

variable ..... any symbol, usually a letter, which could represent a number

whole numbers ..... the numbers in the set {0, 1, 2, 3, 4, …}