Vocabulary

Vocabulary

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

axis of symmetry ..... vertical line passing through the maximum or minimum point of a parabola

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.

coordinates ..... numbers that correspond to points on a coordinate plane in the form (x, y), or a number that corresponds to a point on a number line

data ..... information in the form of numbers gathered for statistical purposes

domain ..... set of x-values of a relation

element ..... one of the objects in a set

equation ..... a mathematical sentence stating that the two expressions have the same value
Example: $2x = 10$

estimation ..... the use of rounding and/or other strategies to determine a reasonably accurate approximation, without calculating an exact answer
Examples: clustering, front-end estimating, grouping, etc.

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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.

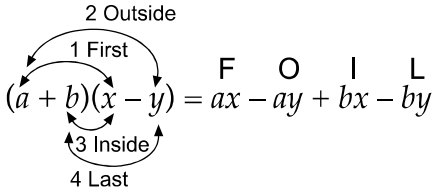
factor ..... a number or expression that divides evenly into another number; one of the numbers multiplied to get a product
Examples: 1, 2, 4, 5, 10, and 20 are factors of 20 and $(x + 1)$ is one of the factors of $(x^2 - 1)$.

factoring ..... expressing a polynomial expression as the product of monomials and polynomials
Example: $x^2 - 5x + 4 = 0$
$(x - 4)(x - 1) = 0$

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:



function notation ..... a way to name a function that is defined by an equation
Example: In function notation, the equation $x = 5x + 4$ is written as $f(x) = 5x + 4$.

function (of *x*) ..... a relation in which each value of x is paired with a unique value of y

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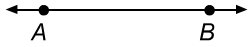
horizontal ..... parallel to or in the same plane of the horizon

intersect ..... to meet or cross at one point

line (↔) ..... a collection of an infinite number of points forming a straight path extending in opposite directions having unlimited length and no width



linear function ..... an equation whose graph is a nonvertical line

maximum ..... the highest point on the vertex of a parabola, which opens downward

mean (or average) ..... the arithmetic average of a set of numbers; a measure of central tendency

minimum ..... the lowest point on the vertex of a parabola, which opens upward

ordered pair..... the location of a single point on a rectangular coordinate system where the first and second values represent the position relative to the x-axis and y-axis, respectively
Examples: (x, y) *or* (3, -4)

origin ..... the point of intersection of the x- and y-axes in a rectangular coordinate system, where the x-coordinate and y-coordinate are both zero (0)

parabola ..... the graph of a quadratic equation

point ..... a specific location in space that has no discernable length or width

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quadratic equation ..... an equation in the form of $ax^2 + bx + c = 0$

quadratic function ..... an equation in the form $y = ax^2 + bx + c$, where $a \neq 0$

range ..... set of y-values of a relation

relation ..... a set of ordered pairs (x, y)

roots ..... the solutions to a quadratic equation

rounded number ..... a number approximated to a specified place
Example: A commonly used rule to round a number is as follows.

- If the digit in the first place after the specified place is 5 or more, *round up* by adding 1 to the digit in the specified place ($\underline{4}61$ rounded to the nearest hundred is 500).
- If the digit in the first place after the specified place is less than 5, *round down* by *not* changing the digit in the specified place ($\underline{4}41$ rounded to the nearest hundred is 400).

set ..... a collection of distinct objects or numbers

slope ..... the ratio of change in the vertical axis (y-axis) to each unit change in the horizontal axis (x-axis) in the form $\frac{\text{rise}}{\text{run}}$ or $\frac{\Delta y}{\Delta x}$; the constant, m, in the linear equation for the slope-intercept form $y = mx + b$

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solution ..... any value for a variable that makes an equation or inequality a true statement
Example: In $y = 8 + 9$
$y = 17$ 17 is the solution.

solve ..... to find all numbers that make an equation or inequality true

value (of a variable) ..... any of the numbers represented by the variable

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

vertex ..... the maximum or minimum point of a parabola

vertical ..... at right angles to the horizon; straight up and down

vertical line test ..... if any vertical line passes through no more than one point of the graph of a relation, then the relation is a function

***x*-axis** ..... the horizontal number line on a rectangular coordinate system

***x*-intercept** ..... the value of x at the point where a line or graph intersects the x-axis; the value of y is zero (0) at this point

***y*-axis** ..... the vertical number line on a rectangular coordinate system

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y-intercept ..... the value of y at the point where a line or graph intersects the y-axis; the value of x is zero (0) at this point

zero product property ..... for all numbers a and b, if $ab = 0$, then $a = 0$ and / or $b = 0$

zeros ..... the points where a graph crosses the x-axis; the roots, or x-intercepts, of a quadratic function