

## Algebra I

**abscissa**

the distance along the horizontal axis in a coordinate graph; graphs the domain.

**absolute value**

the numerical [value] when direction or sign is not considered. (two words)

**additive inverse**

the opposite (negative) of a number. Any number plus its \_\_\_\_\_ equals 0. (two words)

**algebra**

arithmetic operations using letters and/or symbols in place of numbers.

**algebraic expressions**

[expressions] composed of letters to stand for numbers. (two words, plural)

**algebraic fractions**

[fractions] using a variable in the numerator and/or denominator. (two words, plural)

**ascending order**

basically, when the power of a term increases for each succeeding term. (two words)

**associative property**

grouping of elements does not make any difference in the outcome. Only true for multiplication and addition. (two words)

**axiom**

an accepted general truth or principle by virtue of a claim to intrinsic merit or on the basis of an appeal to self-evidence; a priori.

**binomial**

an algebraic expression consisting of two terms.

**braces**

grouping symbols used after the use of brackets. Also used to represent a set. { } (plural)

**brackets**

grouping symbols used after the use of parentheses. [ ] (plural)

**canceling**

in multiplication of fractions, dividing the same number into both a numerator and a denominator.

**cartesian coordinates**

a system of assigning ordered number pairs to points on a plane. (two words, plural)

**closed half-plane**

a [half-plane] that includes the boundary line and is graphed using a solid line and shading. (three words, hyphenated)

**closed interval**

an [interval] that includes both endpoints or fixed boundaries. (two words)

**closure property**

when all answers fall into the original set. (two words)

**coefficient**

the number in front of a variable. For example, in  $9x$ , 9 is the \_\_\_\_\_.

**common factors**

[factors] that are the same for two or more numbers. (two words, plural)

**commutative property**

order of elements does not make any difference in the outcome. Only true for multiplication and addition. (two words)

**complex fraction**

a [fraction] having a fraction or fractions in the numerator and/or denominator. (two words)

**composite number**

a [number] divisible by more than just 1 and itself (such as 4, 6, 8, 9, ...). 0 and 1 are not \_\_\_\_\_s. (two words)

**conjugate**

the \_\_\_\_\_ of a binomial contains the same terms, but the opposite sign between them.  $(x + y)$  and  $(x - y)$  are \_\_\_\_\_s.

**coordinate axes**

two perpendicular number lines used in a coordinate graph. (two words, plural)

**coordinate graph**

two perpendicular number lines of a [graph], the x axis and the y axis, creating a plane on which each point is assigned a pair of numbers. (two words)

**coordinates**

the numbers that correspond to a point on a coordinate graph. (plural)

**cube**

the result when a number is multiplied by itself twice. Designated by the exponent 3 (such as  $x^3$ ).

**cube root**

the number that when multiplied by itself twice gives you the original number. For example, 5 is the \_\_\_\_\_ of 125, which is symbolized as  $125^{1/3} = 5$ . (two words)

**denominator**

everything below the fraction bar in a fraction.

**descending order**

basically, when the power of a term decreases for each succeeding term. (two words)

**direct variation**

when y varies directly as x, or when y is directly proportional to x. (two words)

**discriminant**

the value under the radical sign in the quadratic formula.  $[b^2 - 4ac]$

**distributive property**

the process of distributing the number on the outside of the parentheses to each number on the inside.  $a(b + c) = ab + ac$  (two words)

**domain**

the set of all first coordinates (or  $x$ ) from the ordered pairs in a relation; plotted on the abscissa.

**element**

a member of a set.

**empty set**

a [set] with no members (a null set). (two words)

**equal sets**

[sets] that have exactly the same members. (two words, plural)

**equation**

a balanced relationship between numbers and/or symbols. A mathematical sentence.

**equivalent sets**

[sets] that have the same number of members. (two words, plural)

**Euler circles**

a method of pictorially representing sets with [circles]. (two words, plural)

**evaluate**

to determine the value or numerical amount.

**exponent**

a numeral used to indicate the power of a number.

**expression**

a collection of mathematical symbols expressing a quantity.

**extremes**

outer terms. (plural)

**factor**

to find two or more quantities whose product equals the original quantity; one of the numbers or mathematical expression by which a larger number etc. can be divided exactly.

**finite**

countable. Having a definite ending.

**FOIL method**

a [method] of multiplying binomials in which first terms, outside terms, inside terms, and last terms are multiplied. (two words)

**function**

a relation in which each element in the domain is paired with exactly one element in the range.

**graphing method**

a [method] of solving simultaneous equations by graphing each equation on a coordinate

graph and finding the common point (intersection). (two words)

**half-open interval**

an [interval] that includes one endpoint, or one boundary. (three words, hyphenated)

**half-plane**

the region of a coordinate graph on one side of a boundary line. (two words, hyphenated)

**imaginary numbers**

square roots of negative [numbers]. The imaginary unit is  $i$ . (two words, plural)

**indirect variation**

when  $y$  varies indirectly as  $x$ , or  $y$  is indirectly proportional to  $x$ . That is, as  $x$  increases,  $y$  decreases and as  $y$  increases,  $x$  decreases. (two words)

**inverse variation**

when  $y$  varies inversely as  $x$ , or  $y$  is inversely proportional to  $x$ . That is, as  $x$  increases,  $y$  decreases and as  $y$  increases,  $x$  decreases. (two words)

**inequality**

a statement in which the relationships are not equal. The opposite of an equation.

**infinite**

uncountable. Continues forever.

**integer**

a whole number, either positive, negative, or zero.

**intersection of sets**

the members that overlap (are in both [sets]). hint: (  $\cap$  ) of (  $\cap$  ) (three words, plural)

**interval**

all the numbers that lie within two certain boundaries.

**inverse relations**

[relations] where the domain and the range have been interchanged, switching the coordinates in each ordered pair. (two words, plural)

**linear equation**

an [equation] whose solution set forms a straight line when plotted on a coordinate graph. (two words)

**literal**

Consisting of, or expressed by, letters; in computer science the letter would be an explicit number, i.e., the value of a constant.

**literal equation**

an [equation] having mostly variables; usually has no numbers, only symbols. (two words)

**means**

inner terms. (plural)

**monomial**

an algebraic expression consisting of only one term.

**multiplicative inverse**

the reciprocal of the number. Any number multiplied by its \_\_\_\_\_ equals 1. (two words)

**nonlinear equation**

an [equation] whose solution set does not form a straight line when plotted on a coordinate graph. (two words)

**null set**

a [set] with no members (an empty set). (two words)

**number line**

a graphic representation of integers and real numbers. The point on this [line] associated with each number is called the graph of the number. (two words)

**numerator**

everything above the fraction bar in a fraction.

**numerical coefficient**

the number in front of the variable. (two words)

**numerical equation**

an [equation] which has all the quantities except the unknown expressed in numbers. (two words)

**open half-plane**

a [half-plane] that does not include the boundary line. If the inequality is a 'less than' or 'greater than', then the graph is a(n) \_\_\_\_\_. (three words, hyphenated)

**open interval**

an [interval] that does not include endpoints or fixed boundaries. (two words)

**open ray**

a [ray] that does not include its endpoint (half line). (two words)

**ordered pair**

any [pair] of elements (x, y) having a first element x and a second element y. Used to identify or plot points on a coordinate grid. (two words)

**ordinate**

the distance along the vertical axis on a coordinate graph.

**origin**

the point of intersection of the two number lines on a coordinate graph. Represented by the coordinates (0,0).

**polynomial**

an algebraic expression consisting of two or more terms.

**postulate**

a statement that is accepted without proof; assumed to be true.

**positive multiplication property of inequality**

if c greater than 0, then a greater than b if, and only if, ac greater than bc. (five words)

**proportion**

two ratios equal to each other. For example, a is to c as b is to d

**quadrants**

four quarters or divisions of a coordinate graph. (plural)

**quadratic equation**

an [equation] that could be written  $Ax^2 + Bx + C = 0$ . (two words)

**quadratic formula**

a method of solving quadratic equations. (two words)

**radical sign**

the symbol used to designate square root. (two words)

**range**

the set of all second (or y) coordinates from the ordered pairs in a relation.

**ratio**

a method of comparing two or more numbers. For example, a: b. Often written as a fraction, a/b.

**real numbers**

the set consisting of all rational and irrational [numbers]. (two words, plural)

**reduced**

to have changed a numerical or algebraic fraction into its lowest terms. For example, 2/4 is \_\_\_\_\_ to 1/2, or a/ab is \_\_\_\_\_ to 1/b.

**reflexive**

directed back to itself; relating an entity to itself.

**reflexive axiom of equality**

for any number a,  $a = a$ . (four words)

**relation**

any set of ordered pairs.

**repeating decimal**

a [decimal] fraction that continues forever repeating a number or block of numbers. (two words)

**roster method**

a [method] of naming a set by listing its members. (two words)

**rule method**

a [method] of naming a set by describing its elements. (two words)

**set**

a group of objects, numbers, and so forth.

**simplify**

to combine several or many terms into fewer terms.

**simultaneous equations**

a set of [equations] with the same unknowns (variables). (two words, plural)

**slope of a line**

the ratio of the change in y to the change in x in a linear equation (equals the rise/run [of a line]). (four words)

**solution set**

a [set] whose members are all the answers that satisfy an equation. (two words)

**square**

the result when a number is multiplied by itself. Designated by the exponent 2 (such as  $x^2$ ).

**square root**

the number that when multiplied by itself gives you the original number. For example, 5 is the \_\_\_\_\_ of 25, which is symbolized as  $(25)^{1/2} = 5$ . (two words)

**subset**

a set within a set.

**substitution method**

a [method] of solving simultaneous equations that involves substituting one equation into another. (two words)

**symmetric axiom of equality**

if  $a = b$  then  $b = a$ . (four words)

**system of equations**

another term for simultaneous [equations]. (three words, plural)

**term**

a numerical or literal expression with its own sign.

**theorem**

a mathematical statement proved by a chain of reasoning.

**transitive**

leading successively on to members of a class (set)

**transitive axiom of equality**

if  $a = b$  and  $b = c$ , then  $a = c$ . (four words)

**transitive axiom of inequality**

if  $a$  greater than  $b$  and  $b$  greater than  $c$ , then  $a$  greater than  $c$ . Or if  $a$  less than  $b$  and  $b$  less than  $c$ , then  $a$  less than  $c$ . (four words)

**trinomial**

an algebraic expression consisting of three terms.

**union of sets**

all the numbers in those [sets]. (three words, plural)

**universal set**

the general category [set], or the set of all those elements under consideration. (two words)

**unknown**

a letter or symbol whose value is not known.

**value**

numerical amount.

**variable**

a symbol used to stand for a number.

**variation**

a relationship between a set of values of one variable and a set of values of other variables.

**Venn diagram**

a pictorial description of sets. (two words)

**vinculum**

a line placed over (sometimes under) a digit or group of digits in a repeating decimal fraction to show which digits are repeating.

**whole number**

0, 1, 2, 3, and so on. (two words)

**x-axis**

the horizontal [axis] in a coordinate graph. (hyphenated)

**x-coordinate**

the first number in the ordered pair. Refers to the distance on the x-axis (the abscissa). (hyphenated)

**y-axis**

the vertical [axis] in a coordinate graph. (hyphenated)

**y-coordinate**

the second number in the ordered pair. Refers to the distance on the y-axis (the ordinate). (hyphenated)

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