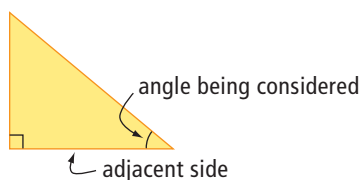


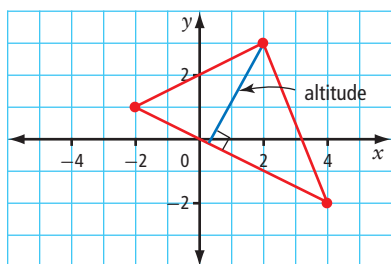
# Glossary

## A

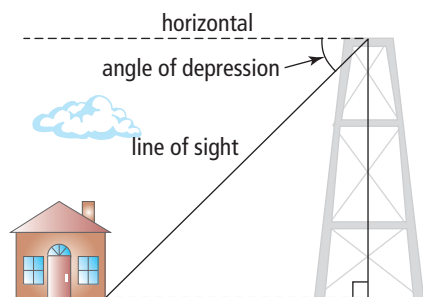
**adjacent side** The side that forms one of the arms of the acute angle being considered in a right triangle, but is not the hypotenuse.



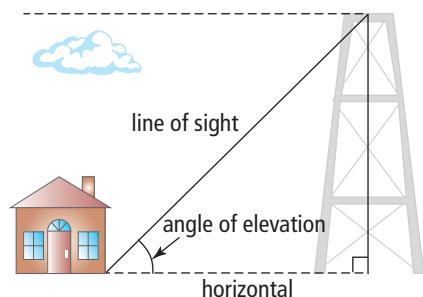
**altitude (of a triangle)** The perpendicular distance from a vertex to the opposite side.



**angle of depression** The angle formed by the horizontal and a line of sight below the horizontal.



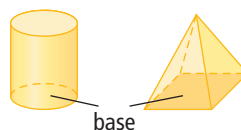
**angle of elevation** The angle formed by the horizontal and a line of sight above the horizontal.



**apex** The highest point of a pyramid, perpendicular and opposite to the base.

## B

**base (of a three-dimensional object)** The bottom face of a three-dimensional object that is oriented in a traditional way.



**binomial** A polynomial with two terms.

For example,  $x^2 + 3$ ,  $m^2n + 4n$ , and  $2x - 5y$  are binomials.

## C

**circumference** The boundary or perimeter of a circle. This is a linear measurement. It is often represented by the variable  $C$ .

**coincident lines** Lines that occupy the same position. In a graph of two coincident lines, any point of either line lies on the other line.

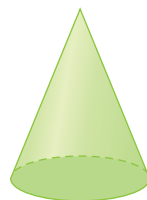
**common factor** A term that is a factor of two or more terms.

For example, 2 is a common factor of 4, 12, and 18, and  $x$  is a common factor of  $x^2$ ,  $xy$ , and  $xy^2$ .

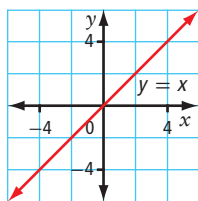
**common multiple** A number that is a multiple of two or more numbers.

For example, common multiples of 3 and 5 are 15, 30, 45, 60, ...

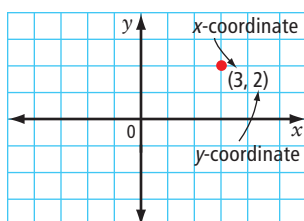
**cone** A three-dimensional object with a circular base and a curved lateral surface that extends from the base to the vertex.



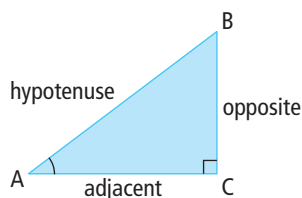
**continuous data** Data values on a graph that are connected.



**coordinates** The values in an ordered pair. The x-coordinate is the distance from the vertical or y-axis. The y-coordinate is the distance from the horizontal or x-axis.



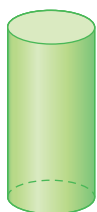
**cosine ratio** For an acute angle in a right triangle, the ratio of the length of the adjacent side to the length of the hypotenuse.  $\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$



**cube root** One of three equal factors of a number.

$$\text{For example, } \sqrt[3]{512} = \sqrt[3]{(8)(8)(8)} = 8$$

**cylinder** A three-dimensional object with two parallel and congruent circular bases.



## D

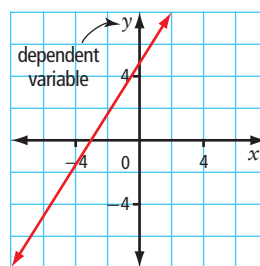
**degree (of a polynomial)** The degree of the highest-degree term in a polynomial.

For example, the polynomial  $7a^2 - 3a$  has a degree of two.

**degree (of a term)** The sum of the exponents on the variables in a single term.

For example, the degree of  $3x^3z^2$  is 5. A variable with no exponent has a degree of one.

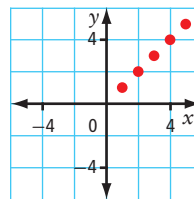
**dependent variable** The variable whose values depend on those of the independent variable.



**difference of squares** An expression of the form  $a^2 - b^2$  that involves the subtraction of two squares.

For example,  $x^2 - 4$  and  $y^2 - 25$  are differences of squares.

**discrete data** Data values on a graph that are not connected.



**distributive property** The rule that states  $a(b + c) = ab + ac$ .

For example,  $40(20 + 6) = (40)(20) + (40)(6)$ .

**domain** The set of all possible values for the independent variable in a relation.

## E

**elimination method** An algebraic method of solving a system of equations. Add or subtract the equations to eliminate one variable and solve for the other variable.

**entire radical** The product of 1 and a radical.

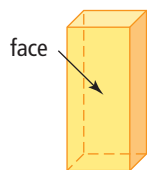
For example,  $\sqrt{32}$  and  $\sqrt[3]{2^5}$  are entire radicals.

**exponent** The number of times you multiply the base in a power by itself.

For example, in  $2^3$ , the exponent is 3, so the base is multiplied by itself three times:  
 $2 \times 2 \times 2 = 8$ .

## F

**face** A flat or curved surface of a three-dimensional object.



**factor** Any number or variable that when multiplied with one or more other numbers or variables forms a product.

For example, the factors of 12 are 1, 2, 3, 4, 6, and 12, and the factors of  $a^2b$  are  $a$ ,  $a$ , and  $b$ .

**function** A relation in which each value of the independent variable is associated with exactly one value of the dependent variable. For every value in the domain there is a unique value in the range.

**function notation** A notation used when a relation is a function. It is written  $f(x)$  and read as “ $f$  of  $x$ ” or “ $f$  at  $x$ .”

## G

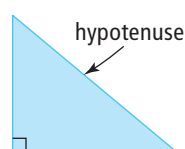
**general form** The equation of a line in the form  $Ax + By + C = 0$ , where  $A$ ,  $B$ , and  $C$  are real numbers, and  $A$  and  $B$  are not both zero. By convention,  $A$  is a whole number. This means that  $A$  will always be positive.

**greatest common factor (GCF)** The largest factor shared by two or more terms.

For example, the GCF of 12 and 28 is 4, and the GCF of  $x^2yz$  and  $x^2y^3$  is  $x^2y$ .

## H

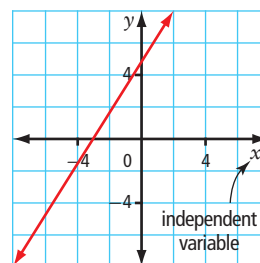
**hypotenuse** The side opposite the right angle in a right triangle.



## I

**imperial system** A system of measurement based on British units.

**independent variable** The variable for which values are selected.



**index** Indicates what root to take.

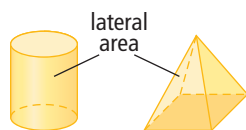
$$\text{index} \rightarrow \sqrt[n]{x}$$

**irrational number** A number that cannot be expressed in the form  $\frac{a}{b}$ , where  $a$  and  $b$  are integers, and  $b \neq 0$ . It cannot be expressed as a terminating or repeating decimal.

For example,  $\pi = 3.1415\dots$  and  $\sqrt{5} = 2.236\dots$  are irrational numbers.

## L

**lateral area** The surface that joins the two bases of a three-dimensional object or that joins the base to the highest point.



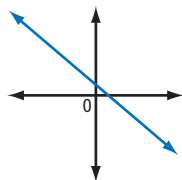
**least common multiple (LCM)** The smallest multiple shared by two or more terms.

For example, the LCM of 6 and 8 is 24.

**like terms** Terms that have the same variable(s) raised to the same exponent(s).

For example,  $3x$  and  $-2x$  are like terms.

**linear relation** A relation that forms a straight line when the data are plotted on a graph.



## M

**metric system** A system of measurement in which all units are based on powers of ten. The metre is the basic unit of length.

**mixed radical** The product of a rational number and a radical.

For example,  $3\sqrt{2}$  and  $\frac{1}{2}\sqrt[3]{6}$  are mixed radicals.

**monomial** A polynomial with one term.

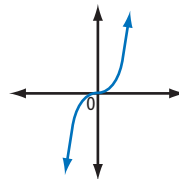
For example,  $5$ ,  $2x$ ,  $3s^2$ ,  $-8cd$ , and  $\frac{n^4}{3}$  are monomials.

**multiple (of a number)** The product of a given number and an integral value.

For example, the multiples of 5 are 5, 10, 15, 20, ....

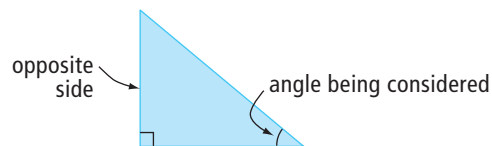
## N

**non-linear relation** A relation that does not form a straight line when the data are plotted on a graph.



## O

**opposite side** The side across from the acute angle being considered in a right triangle. It is the side that does not form one of the arms of the angle being considered.



## P

**parallel lines** Lines in the same plane that do not intersect. They have the same slope but different intercepts.

**parameter** A variable that has a constant value in a particular equation.

**perfect cube** A number that can be expressed as the product of three equal factors.

For example,  $64 = (4)(4)(4)$  or  $4^3$ .

**perfect square** A number that can be expressed as the product of two equal factors.

For example,  $16 = (4)(4)$  or  $4^2$ .

**perfect square trinomial** The result of squaring a binomial.

For example,  $(x + 5)^2 = x^2 + 10x + 25$  is a perfect square trinomial.

**perpendicular lines** Two lines that intersect at right angles ( $90^\circ$ ). These two lines have slopes that are negative reciprocals of each other.

**point of intersection** A point at which two lines touch or cross.

**polynomial** An algebraic expression formed by adding or subtracting terms.

For example,  $x + 5$ ,  $2d - 2.4$ , and  $3s^2 + 5s - 6$  are polynomials.

**power** An expression made up of a base and an exponent.

For example, in the power  $6^3$ , 6 is the base and 3 is the exponent.

**primary trigonometric ratios** The three ratios—sine, cosine, and tangent—defined in a right triangle.

**prime factor** A factor that is a prime number; that is, a number divisible only by 1 and itself.

For example, the prime factors of 10 are 2 and 5.

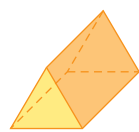
**prime factorization** The process of writing a number as a product of its prime factors.

For example, the prime factorization of 24 is  $2 \times 2 \times 2 \times 3$ .

**prism** A three-dimensional object with two parallel and congruent polygon bases and rectangular sides.

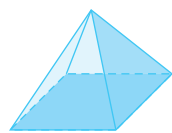


rectangular prism



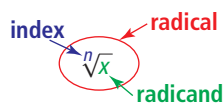
triangular prism

**pyramid** A three-dimensional object with one base and the same number of triangular faces as there are sides on the base.



## R

**radical** Consists of a root symbol, an index, and a radicand. It can be rational (for example,  $\sqrt{4}$ ) or irrational (for example,  $\sqrt{2}$ ).



**radicand** The quantity under the radical sign.



**range** The set of all possible values for the dependent variable as the independent variable takes on all possible values of the domain.

**rational exponent** An exponent that can be expressed as the quotient of two integers, where the divisor is not zero.

For example, in  $16^{\frac{1}{4}}$ ,  $\frac{1}{4}$  is a rational exponent.

**rational number** A number that can be expressed as the quotient of two integers, where the divisor is not zero.

For example, 0.5,  $\frac{3}{4}$ , and  $-2$  are rational numbers.

**referent** An item that an individual uses as a measurement unit for estimating.

For example, the height of a doorknob above the floor is about 1 m, or the thickness of a dime is about 1 mm.

**relation** An association between two quantities. It can be presented in words, as an equation, as a table of values, as ordered pairs, or as a graph.

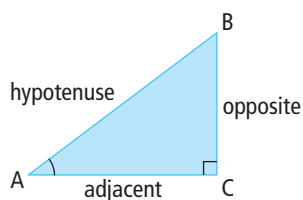
## S

**set notation** A formal mathematical way to give the values of the domain and range.

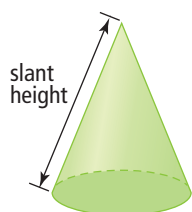
For example, the domain is  $\{x \mid x \leq 10, x \in \mathbb{R}\}$  and the range is  $\{y \mid y > 20, y \in \mathbb{R}\}$ .

**SI (Système International d'Unités)** A system of measurement in which all units are based on powers of ten. The metre is the basic unit of length.

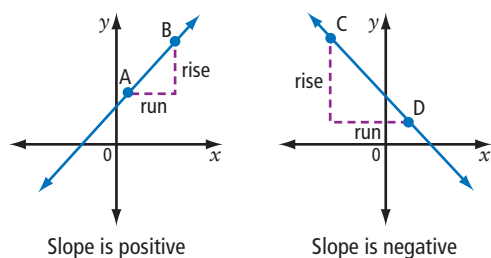
**sine ratio** For an acute angle in a right triangle, the ratio of the length of the opposite side to the length of the hypotenuse.  $\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$



**slant height** The shortest lateral distance from the edge of the base of a cone or pyramid to its highest point.



**slope** The ratio of the vertical change, or rise, to the horizontal change, or run, of a line or line segment. Slope is not expressed with units.

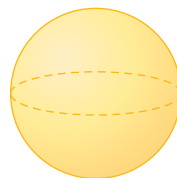


**slope-intercept form** The equation of a line in the form  $y = mx + b$ , where  $m$  is the slope of the line and  $b$  is the  $y$ -intercept.

**slope-point form** The equation of a non-vertical line in the form  $y - y_1 = m(x - x_1)$ , where  $m$  is the slope and  $(x_1, y_1)$  are the coordinates of a point on the line.

**solution (to a system of linear equations)** A point of intersection of the lines on a graph. It is an ordered pair that satisfies both equations, or a pair of values occurring in the tables of values of both equations.

**sphere** A round, ball-shaped object. It is a set of points in space that are a given distance (radius) from a fixed point (centre).

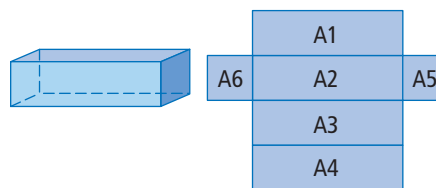


**square root** One of two equal factors of a number.

$$\text{For example, } \sqrt{49} = \sqrt{(7)(7)} \\ = 7$$

**substitution method** An algebraic method of solving a system of equations. Solve one equation for one variable. Then, substitute that value into the other equation and solve for the other variable.

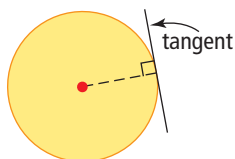
**surface area** The number of square units needed to cover a three-dimensional object. It is the sum of the areas of all the faces of an object.



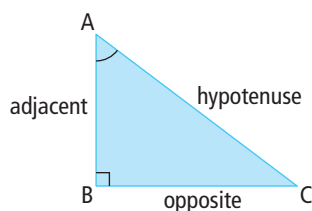
**system of linear equations** Two or more linear equations involving common variables.

## T

**tangent (of a circle)** A line that touches a circle at exactly one point. The line is perpendicular to the radius at that point. The point where the line touches the circle is called the point of tangency.



**tangent ratio** For an acute angle in a right triangle, the ratio of the length of the opposite side to the length of the adjacent side.  $\tan A = \frac{\text{opposite}}{\text{adjacent}}$



**term** A number or a variable, or the product of numbers and variables.

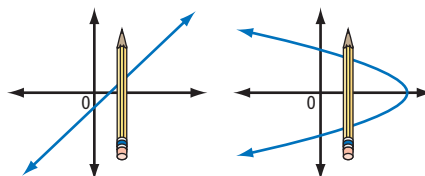
For example, the expression  $5x + 3$  has two terms:  $5x$  and  $3$ .

**trinomial** A polynomial with three terms.

For example,  $x^2 + 3x - 1$  and  $2x^2 - 5xy + 10y^2$  are trinomials.

## V

**vertical line test** A test to see if a graph represents a function. If any vertical line crosses the graph at more than one point, the relation is not a function.



**volume** The amount of space a three-dimensional object occupies. It is measured in cubic units.

## X

**x-intercept** The x-coordinate of the point where a line or curve crosses the x-axis. It is the value of  $x$  when  $y = 0$ .

## Y

**y-intercept** The y-coordinate of the point where a line or curve crosses the y-axis. It is the value of  $y$  when  $x = 0$ .

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