FCAT Mathematics Glossary
Grades 6–8

The terms defined in this glossary pertain to the *Sunshine State Standards* in mathematics for Grades 6 through 8 and the content assessed on the FCAT in mathematics. Included are the glossary terms from Grades 3 through 5. Italicized words or phrases within a definition are defined separately in this glossary.

Absolute value — a number's distance from zero (0) on a number line. Distance is expressed as a positive value (e.g., $|3| = 3$ and $|^{-}3| = 3$).

Acute angle — an *angle* that measures less than 90° and greater than 0°.

Addend — any number being added.

Additive identity — the number zero (0). When zero (0) is added to another number the sum is the number itself (e.g., $5 + 0 = 5$).

Additive inverse property — a number and its additive inverse have a sum of zero (0) (e.g., in the equation $3 + {}^{-}3 = 0$, 3 and $^{-}3$ are additive inverses of each other).

Algebraic equation (inequality) — a mathematical sentence containing *variables* in which two *expressions* are connected by an equality (inequality) symbol. See also *equation* and *inequality.*

Algebraic expression — an expression containing numbers and *variables* (e.g., $7x$), and operations that involve numbers and *variables* (e.g., $2x + y$). Algebraic expressions do not contain equality or *inequality* symbols.

Algebraic order of operations — the order of performing computations is parentheses first, then *exponents,* followed by multiplication and/or division (as read from left to right), then addition and/or subtraction (as read from left to right). For example:
$= 5 + (12 - 2) \div 2 - 3 \times 2$
$= 5 + 10 \div 2 - 3 \times 2$
$= 5 + 5 - 6$
$= 10 - 6$
$= 4$

Algebraic rule — a mathematical *expression* that contains *variables* and describes a pattern or relationship.

Altitude — the *perpendicular* distance from a *vertex* in a *polygon* to its opposite *side.*

Angle — two *rays* extending from a common end *point* called the *vertex.* Angles are measured in degrees.

Area the measure, in square units, of the inside region of a closed two-dimensional figure (e.g., a rectangle with sides of 4 units by 6 units has an area of 24 square units).

Associative property the way in which three or more numbers are grouped for addition or multiplication does not change their *sum* or *product,* respectively [e.g., $(5 + 6) + 9 = 5 + (6 + 9)$ or $(2 \times 3) \times 8 = 2 \times (3 \times 8)$].

Axes (of a graph) the horizontal and vertical *number lines* used in a *coordinate plane* system.

Axis the singular form of *axes.*

Bar graph a graph that uses either vertical or horizontal bars to display data.

Base (algebraic) the number used as a factor in *exponential form.* For example 2^3 is the exponential form of $2 \times 2 \times 2$. The numeral two (2) is called the base, and the numeral three (3) is called the *exponent.*

Base (geometric) the line or plane of a geometric figure, from which an *altitude* can be constructed, upon which a figure is thought to rest.

Box-and-whisker plot a basic graphing tool that displays centering, spread, and distribution of a data set.

Break a zigzag on the *x*- or *y*-axis in a line or bar graph indicating that the data being displayed do not include all of the values that exist on the *number line* used. Also called a *squiggle.*

Capacity the amount of space that can be filled in a container. Both capacity and *volume* are used to measure three-dimensional spaces; however, capacity usually refers to fluid measures, whereas *volume* is described as cubic units.

Central angle an angle that has its *vertex* at the center of a circle, with *radii* as its sides.

Chart a *data display* that presents information in columns and rows.

Circle graph a *data display* that divides a circle into regions representing a portion of the total set of data. The circle represents the whole set of data.

Circumference the distance around a circle.

Closed figure a two-dimensional figure that divides the *plane* in which the figure lies into two parts—the part inside the figure and the part outside the figure (e.g., circles, squares, rectangles).

Commutative property	the order in which two numbers are added or multiplied does not change their *sum* or *product,* respectively (e.g., $2 + 3 = 3 + 2$ or $4 \times 7 = 7 \times 4$).
Complementary angles	two *angles* with measures that sum to be exactly 90°.
Composite number	a whole number that has more than two *factors.*
Congruent	figures or objects that are the same shape and size.
Coordinate grid or plane	a two-dimensional network of horizontal and vertical lines that are *parallel* and evenly-spaced; especially designed for locating points, displaying data, or drawing maps.
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.*
Counting principle	if a first event has n outcomes and a second event has m outcomes, then the first event followed by the second event has $n \times m$ outcomes.
Customary units	the units of measure developed and used in the United States. Customary units for *length* are inches, feet, yards, and miles. Customary units for *weight* are ounces, pounds, and tons. Customary units for *volume* are cubic inches, cubic feet, and cubic yards. Customary units for *capacity* are fluid ounces, cups, pints, quarts, and gallons.
Cylinder	a three-dimensional figure with two *parallel* bases that are *congruent* circles.
Data displays/graphs	different ways of displaying data in *charts, tables,* or graphs, including *pictographs, circle graphs,* single-, double-, or triple-*bar* and *line graphs,* histograms, *stem-and-leaf plots, box-and-whisker plots,* and *scatter plots.*
Decimal number	any number written with a decimal point in the number. A decimal number falls between two *whole numbers* (e.g., 1.5 falls between 1 and 2). Decimal numbers smaller than 1 are sometimes called decimal fractions (e.g., five-tenths is written 0.5).
Diameter	a *line segment* from any point on the circle passing through the center to another point on the circle.
Difference	a number that is the result of subtraction.

Dilation	a proportional increase or decrease in size in all dimensions.
Direct measure	obtaining the measure of an object by using measuring devices, either standard devices of the *customary* or *metric systems,* or nonstandard devices such as a paper clip or pencil.
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.* For example, $x(a + b) = ax + bx$.
Divisible	a number capable of being divided by another number without a remainder.
Divisor	the number by which another number is divided.
Empirical probability	the likelihood of an event happening that is based on experience and observation rather than on theory.
Enlargement	See *dilation.*
Equation	a mathematical sentence in which two *expressions* are connected by an equality symbol. See also *algebraic equation (inequality)*.
Equilateral triangle	a triangle with three *congruent* sides.
Equivalent expressions	*expressions* that have the same value but are presented in a different format using the properties of numbers.
Equivalent forms of a number	the same number expressed in different forms (e.g., $\frac{3}{4}$, 0.75, 75%).
Estimation	the use of rounding and/or other strategies to determine a reasonably accurate approximation, without calculating an exact answer (e.g., clustering, front-end estimating, grouping, etc.).
Evaluate an algebraic expression	substitute numbers for the *variables* and follow the *algebraic order of operations* to find the numerical value of the *expression.*
Exponent (exponential form)	the number of times the *base* occurs as a *factor.* For example, 2^3 is the exponential form of $2 \times 2 \times 2$. The numeral two (2) is called the *base,* and the numeral three (3) is called the exponent.
Expression	a collection of numbers, symbols, and/or operation signs that stands for a number.
Extraneous information	information that is not necessary to solving the problem.

Extrapolate to *estimate* or infer a value or quantity beyond the known range of data.

Face one of the *plane* surfaces bounding a three-dimensional figure; a *side.*

Factor a number or *expression* that divides evenly into another number [e.g., 1, 2, 4, 5, 10, and 20 are factors of 20 and $(x + 1)$ is one of the factors of $(x^2 - 1)$].

Flip See *reflection.*

Fraction any part of a whole is called a fraction (e.g., one-half written in fractional form is $\frac{1}{2}$).

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

Function table a table of x- and y-values (*ordered pairs*) that represents the *function, pattern,* relationship, or *sequence* between the two *variables.*

Grid See *coordinate grid.*

Height a *line segment* extending from the *vertex* or apex of a figure to its *base* and forming a *right angle* with the *base* or *plane* that contains the *base.*

Hypotenuse the longest *side* of a right triangle; the *side* opposite the *right angle.*

Hypothesis a proposition or supposition developed to provide a basis for further investigation or research.

Indirect measure the measurement of an object through the known measure of another object.

Inequality a sentence that states one *expression* is greater than, greater than or equal to, less than, less than or equal to, or not equal to, another *expression* (e.g., $a \neq 5$ or $x < 7$ or $2y + 3 \geq 11$). See also *algebraic inequality.*

Integers the numbers in the set $\{\ldots {}^{-}4, {}^{-}3, {}^{-}2, {}^{-}1, 0, 1, 2, 3, 4 \ldots\}$.

Intercept the value of a *variable* when all other *variables* in the *equation* equal zero (0). On a graph, the values where a *function* crosses the *axes.*

Intersection the *point* at which *lines* or curves meet; the *line* where *planes* meet.

Inverse operation an action that undoes a previously applied action. For example, subtraction is the inverse operation of addition.

Irrational number — a *real number* that cannot be expressed as a *ratio* of two integers (e.g., $\sqrt{2}$).

Isosceles triangle — a triangle with two *congruent sides* and two *congruent angles.*

Labels (for a graph) — the titles given to a graph, the *axes* of a graph, or to the *scales* on the *axes* of a graph.

Length — a one-dimensional measure that is the measurable property of *line segments.*

Likelihood — the chance that something is likely to happen. See *probability.*

Line — a collection of an infinite number of *points* in a straight pathway with unlimited *length* and having no width.

Line graph — a graph that displays data using connected *line segments.*

Line segment — a portion of a *line* that consists of two defined endpoints and all the points in between.

Linear equation — an *algebraic equation* in which the *variable* quantity or quantities are raised to the zero or first power and the graph is a straight *line* [e.g., $20 = 2(w + 4) + 2w$ and $y = 3x + 4$].

Linear inequality — an *algebraic inequality* in which the *variable* quantity or quantities are raised to the zero or first power and the graph is a region whose boundary is the straight *line* formed by the inequality.

Mass — the amount of matter in an object.

Mean — the arithmetic average of a set of numbers. It is also a measure of central tendency.

Median — the middle *point* of a set of rank-ordered numbers where half of the numbers are above the median and half are below it. It is also a measure of central tendency.

Metric units — the units of measure developed in Europe and used in most of the world.
Like the decimal system, the metric system uses the *base* 10.
Metric units for *length* are millimeters, centimeters, meters, and kilometers.
Metric units for *mass* are milligrams, grams, and kilograms.
Metric units for *volume* are cubic millimeters, cubic centimeters, and cubic meters.
Metric units for *capacity* are milliliters, centiliters, liters, and kiloliters.

Midpoint of a line segment	the *point* on a *line segment* equidistant from the endpoints.
Mode	the score or data point found most often in a set of numbers. There may be no mode, one mode, or more than one mode in a set of numbers. It is also a measure of central tendency.
Multiples	the numbers that result from multiplying a given *whole number* by the set of *whole numbers* (e.g., the multiples of 15 are 0, 15, 30, 45, 60, 75, etc.).
Multiplicative identity	the number one (1). The *product* of a number and the multiplicative identity is the number itself (e.g., $5 \times 1 = 5$).
Multiplicative inverse (reciprocal)	any two numbers with a product of 1 (e.g., 4 and $\frac{1}{4}$). Zero (0) has no multiplicative inverse.
Natural numbers (counting numbers)	the numbers in the set {1, 2, 3, 4, 5 . . .}.
Negative exponent	Used to designate the *reciprocal* of a number to the *absolute value* of the *exponent.* Also used in scientific notation to designate a number smaller than one (1). For example, 3.45×10^{-2} equals 0.0345.
Nonstandard units of measure	objects such as blocks, paper clips, crayons, or pencils that can be used to obtain a measure.
Number line	a *line* on which ordered numbers can be written or visualized.
Obtuse angle	an *angle* with a measure of more than 90° but less than 180°.
Odds	the *ratio* of one event occurring (favorable outcome) to it not occurring (unfavorable outcome) if all outcomes are equally likely.
Operation	any mathematical process, such as addition, subtraction, multiplication, division, raising to a power, or finding the *square root.*
Operational shortcut	a method having fewer arithmetic calculations.
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 [e.g., (x, y) or (3, -4)].
Organized data	data arranged in a display that is meaningful and that assists in the interpretation of the data. See *data displays.*

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).

Parallel lines — two *lines* in the same *plane* that are a constant distance apart. Parallel lines have equal *slopes.*

Pattern (relationship) — a predictable or prescribed *sequence* of numbers, objects, etc. Patterns and relationships may be described or presented using manipulatives, *tables,* graphics (pictures or drawings), or *algebraic rules (functions)*.

Percent — a special-case *ratio* which compares numbers to 100 (the second term). For example, 25% means the *ratio* of 25 to 100.

Perimeter — the distance around a *polygon.*

Perpendicular — two *lines,* two *line segments,* or two *planes* that *intersect* to form a *right angle.*

Pi (π) — the symbol designating the *ratio* of the *circumference* of a circle to its *diameter.* It is an *irrational number* with common approximations of either 3.14 or $\frac{22}{7}$.

Pictograph — a *data display* constructed with pictures or symbols to visualize any *ratios* between two measures or counts.

Place value — the position of a single digit in a number.

Plane — an infinite two-dimensional geometric surface defined by three non-linear *points* or two distinct *parallel* or *intersecting lines.*

Plane figure — a two-dimensional figure that lies entirely within a single *plane.*

Point — a specific location in space that has no discernible *length* or width.

Polygon — a closed *plane* figure, having at least three sides that are *line segments* and are connected at their endpoints.

Prime number — any *whole number* with only two *whole number factors,* 1 and itself (e.g., 2, 3, 5, 7, 11, etc.).

Probability — a measure of the *likelihood* that a given event will occur; expressed as a *ratio* of one event occurring (favorable outcomes) to the number of equally likely possible outcomes. See also *empirical probability* and *theoretical/expected probability.*

Product the result of multiplying numbers together.

Proportion a mathematical sentence stating that two *ratios* are equal.

Proportional having the same or a constant *ratio.* Two quantities that have the same *ratio* are considered directly proportional (e.g., If $y = kx$, then y is said to be directly proportional to x and the constant of proportionality is k).
Two quantities whose *products* are always the same are considered inversely proportional (e.g., If $xy = k$, then y is said to be inversely proportional to x).

Pyramid a three-dimensional figure whose *base* is a *polygon* and whose *faces* are triangles with a common *vertex.*

Pythagorean theorem the square of the *hypotenuse* (c) of a *right triangle* is equal to the sum of the square of the legs (a and b), as shown in the *equation* $c^2 = a^2 + b^2$.

Quadrant any of the four regions formed by the *axes* in a *rectangular coordinate system.*

Quotient the result of dividing two numbers.

Radical an expression that has a root (*square root,* cube root, etc.) For 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 sign the symbol ($\sqrt{\ }$) used before a number to show that the number is a *radicand.* See also *radical.*

Radicand the number that appears within a *radical sign* (e.g., in $\sqrt{25}$, 25 is the radicand).

Radius a *line segment* extending from the center of a circle or *sphere* to a *point* on the circle or *sphere.* Plural: radii.

Randomly (chosen) an equal chance of being chosen.

Range the lowest value (L) in a set of numbers through the highest value (H) in the set. When the width of the range is expressed as a single number, the range is calculated as the difference between the highest and lowest values (H − L). Other presentations show the range calculated as (H − L + 1). Depending on the context, the result of either calculation would be considered correct.

Rate	a *ratio* that compares two quantities of different units (e.g., feet per second).
Ratio	the comparison of two quantities (e.g., the ratio of *a* and *b* is *a:b* or *a/b*, where $b \neq 0$).
Rational number	a *real number* that can be expressed as a *ratio* of two *integers.*
Ray	a portion of a *line* that begins at an endpoint and goes on indefinitely in one direction.
Real numbers	the set of all *rational* and *irrational numbers.*
Reciprocal	See *multiplicative inverse.*
Rectangular coordinate system	See *coordinate grid or plane.*
Reduction	See *dilation.*
Reflection	a *transformation* that produces the mirror image of a geometric figure over a *line* of reflection. Also called a *flip.*
Regular polygon	a *polygon* that is both equilateral (all *sides congruent*) and equiangular (all *angles congruent*).
Relation	a set of *ordered pairs* (x, y).
Relative size	the size of one number in comparison to the size of another number or numbers.
Right angle	an *angle* whose measure is exactly 90°.
Right circular cylinder	a *cylinder* in which the *bases* are *parallel* circles *perpendicular* to the *side* of the *cylinder.*
Right prism or rectangular solid	a three-dimensional figure (polyhedron) with *congruent,* polygonal *bases* and lateral *faces* that are all parallelograms.
Right triangle geometry	finding the measures of missing *sides* or *angles* of a right triangle when given the measures of other *sides* or *angles.*
Rise	the vertical change on the graph between two *points.*
Rotation	a *transformation* of a figure by turning it about a center *point* or *axis.* The amount of rotation is usually expressed in the number of degrees (e.g., a 90° rotation). Also called a *turn.*

Rule a mathematical *expression* that describes a *pattern* or relationship, or a written description of the *pattern* or *relationship.*

Run the horizontal change on a graph between two *points.*

Scale the numeric values, set at fixed intervals, assigned to the *axes* of a *graph.*

Scale factor the constant that is multiplied by the *length* of each *side* of a figure that produces an image that is the same shape as the original figure.

Scale model a model or drawing based on a *ratio* of the dimensions for the model and the actual object it represents.

Scalene triangle a triangle having no *congruent sides.*

Scatter plot a graph of data *points,* usually from an experiment, that is used to observe the relationship between two *variables*.

Scientific notation a shorthand method of writing very large or very small numbers using *exponents* in which a number is expressed as the *product* of a power of 10 and a number that is greater than or equal to one (1) and less than 10 (e.g., $7.59 \times 10^5 = 759{,}000$).

Sequence an ordered list of numbers with either a constant *difference* (arithmetic) or a constant *ratio* (geometric).

Side the edge of a *polygon* (e.g., a triangle has three *sides*), the face of a polyhedron, or one of the *rays* that make up an *angle.*

Similar figures figures that are the same shape, have corresponding, *congruent angles,* and have corresponding *sides* that are *proportional* in *length.*

Similarity a term describing figures that are the same shape but are not necessarily the same size or in the same position.

Slide See *translation.*

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 $\frac{\Delta y}{\Delta x}$. Also, the constant, m, in the linear *equation* for the slope-intercept form $y = mx + b$.

Solid figures three-dimensional figures that completely enclose a portion of space (e.g., a rectangular prism, cube, *sphere, right circular cylinder,* right circular cone, and square *pyramid*).

Sphere	a three-dimensional figure in which all *points* on the figure are equidistant from a center *point.*
Square root	a positive *real number* that can be multiplied by itself to produce a given number (e.g., the square root of 144 is 12 or $\sqrt{144} = 12$).
Squiggle	See *break.*
Standard units of measure	accepted measuring devices and units of the *customary* or *metric system.*
Stem-and-leaf plot	a graph that organizes data by place value to compare data frequencies.
Straight angle	an *angle* that measures exactly 180°.
Sum	the result of adding numbers together.
Supplementary angles	two *angles* with measures the *sum* of which is exactly 180°.
Surface area of a geometric solid	the *sum* of the areas of the *faces* and any curved surfaces of the figure that create the geometric solid.
Symbolic representations of numbers	*expressions* represented by symbols (e.g., circles shaded to represent $\frac{1}{4}$ or *variables* used to represent quantities).
Symmetry	a term describing the result of a *line* drawn through the center of a figure such that the two halves of the figure are *reflections* of each other across the *line.*
Table	a *data display* that organizes information about a topic into categories. See also *chart.*
Tessellation	a covering of a *plane* with *congruent* copies of the same *pattern* with no holes and no overlaps.
Theoretical/expected probability	the *likelihood* of an event happening based on theory rather than on experience and observation.
Transformation	an *operation* on a geometric figure by which another image is created. Common transformations include *reflections* (*flips*), *translations* (*slides*), *rotations* (*turns*) and *dilations*.
Translation	a *transformation* in which every *point* in a figure is moved in the same direction and by the same distance. See also *slide.*
Transversal	a *line* that *intersects* two or more *lines* at different *points.*

Tree diagram	a diagram in which all the possible outcomes of a given event are displayed.
Trend line	a *line* on a graph indicating a statistical trend.
Turn	See *rotation.*
Unorganized data	data that are presented in a *random* manner.
Variable	any symbol, usually a letter, which could represent a number.
Vertex	the *point* common to the two *rays* that form an *angle;* the *point* common to any two sides of a *polygon*; the *point* common to three or more edges of a *polyhedron.*
Vertical angles	the opposite or non-adjacent *angles* formed when two *lines intersect.*
Volume	the amount of space occupied in three dimensions and expressed in cubic units. Both *capacity* and *volume* are used to measure empty spaces; however, *capacity* usually refers to fluid measures, whereas *volume* is described as cubic units.
Weight	measures that represent the force of gravity on an object.
Whole numbers	the numbers in the set {0, 1, 2, 3, 4 . . .}.
***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.*
***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.*