Alaska Mathematics Standards
Vocabulary Word List
Grade 8

absolute value	The distance of a number from zero on the number line. Absolute value is always positive.
acute triangle	A triangle with no angle measuring 90º or more.
additive inverse	A number that is the same distance from 0 on the number line, but in the opposite direction
altitude	The distance of the shortest line segment from the top of the figure and the base (the height of the figure).
angles	When parallel lines are cut by a transversal:
Adjacent angles	Two angles in a plane that have a common vertex and a common side (e.g., angles a and b).
Alternate exterior angles	Two exterior angles which lie on different parallel lines an on the opposite side of a transversal (e.g., angles b and g).
Alternate interior angles	Two interior angles which lie on different parallel lines an on the opposite side of a transversal (e.g., angles d and e).
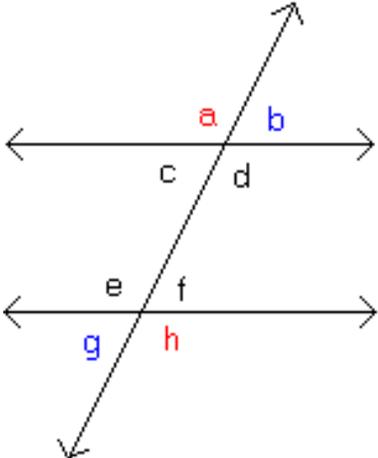
Vertical angles	Two angles that are opposite one another at the intersection of two lines (e.g., angles b and c).
area	
	Area: The measure, in square units, of the interior region of a two-dimensional figure.
	Circle: $A = \pi r^2$, where r = radius of the circle.
	Regular quadrilateral: $A = b \cdot h$, where b = the base and h = the vertical height.
	Triangle: $A = \frac{1}{2} b \cdot h$, where b = the base and h = the vertical height.
	Cube: $A = s^2$, where s = side length
Axis (plural – axes)	A reference line from which distances or angles are measured in a coordinate grid.
Bivariate measurement data	Data that involves two variables in which both are analyzed simultaneously. It deals with the cause or relationship between the two variables.
Circumference	The distance around a circle, which equals a little more than three times its diameter
clustering	A set of points gathered at a particular point.
coefficient	A numerical factor in a term of an algebraic expression.
Complementary angles	Two angles are complementary if they add up to 90° (right angle). They don't have to be next to each other.
Compound events	Two or more independent events considered together.
Congruent	Two or more objects that have the same size and shape. It is denoted by $\cong$.
Constant	A fixed value which contains not variables (e.g., -5 is the constant term in $2x^2 + 4x - 5$).
coordinate plane	A 2-dimensional system in which the coordinates of a point are its distances from two intersecting, usually perpendicular, straight lines called axes. (Also called coordinate *grid* or coordinate *system*.)
coordinate system	Also known as a coordinate grid. A 2-dimensional system in which the coordinates of a point are its distances from two intersecting, usually perpendicular, straight lines called axes.
coordinates	An ordered pair of numbers that identify a point on a coordinate plane.
Corresponding angles	Angles of the same measure in similar figures.
corresponding parts	Sides or segments of the same measure in similar figures.
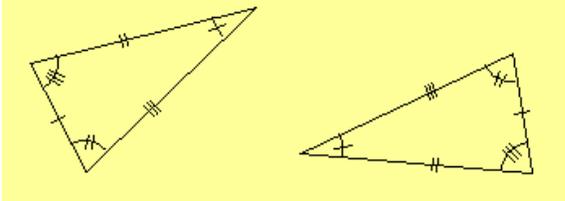
cube	A three-dimensional shape with six square faces.
Cube root	A number that must be multiplied by itself three times to equal a given number. (e.g., the cube root of 27 is 3 because $3 \cdot 3 \cdot 3 = 27$)
Data	Information, especially numerical information. Usually organized for analysis.
Degree of visual overlap	Describes the separation (or lack of separation) between two distributions.
Dependent event	If the result of events is affected by the result of an independent event, the event is said to be dependent.
diagram	A drawing that represents a mathematical situation.
Dilation	A transformation in which a figure grows larger by a common factor.
Distributive Property	$a \bullet (b + c) = (a \bullet b) + (a \bullet c)$ and $a \bullet (b - c) = (a \bullet b) - (a \bullet c)$, where a, b, and c stand for any real numbers.
Domain (of a function)	The set of all possible input values (often the "x" variable), which produce a valid output form a particular function.
equation	A statement that two mathematical expressions are equal.
Equilateral triangle	A triangle with all sides the same length.
Equivalent	Naming the same number.
Evaluate	To find the value of a mathematical expression.
Event	A set of outcomes to which a probability is assigned.
Exponents	A short-hand method of expressing repeated multiplication (e.g., $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 2^5$ where the base is 2 or the number multiplied by itself, and 5 is the exponent which tells how many times the base was multiplied).
Expression	A variable or combination of variables, numbers, and symbols that represents a mathematical relationship.
extrapolate	Use information gathered from statistical events to make guesses or predictions about a hypothetical situation.
factor	An integer that divides evenly into another.
Frequency	The number of times an event occurs within a specific time period.
Formula	An expression used to calculate a desired result, such as a formula to find area. Formulas can also be equations involving numbers and/or variables (e.g., the formula for calculating density is D=M/V where M = mass and V = volume)

Function	A relation from a set of inputs to a set of possible outputs where each input is related to exactly one output.
Function notation	F(x) "f of x" is a way to indicate that an equation is a function. For example, take the linear equation y=2x+3. It can be turned into a linear function f(x)=2x+3. These two mathematical statements mean the same thing.
geometric figure	Any combination of points, lines, planes, or curves in two or three dimensions.
Graph	A pictorial device used to show a numerical relationship.
Independent event	Events for which the probability of any one event occurring is unaffected by the occurrence or non-occurrence of any of the other events.
inequality	A mathematical sentence that compares two unequal expressions using one of the symbols $<$, $>$, $\leq$, $\geq$, or $\neq$.
Inferences	The act or process of deriving logical conclusions from premises known or assumed to be true.
Initial value of a function	The value of the function with the input of zero. Used with rate of change functions.
Input	The input of a function is called the domain.
Integer exponent	An exponent is a number that tells how many times a factor is repeated in a product. For positive exponents $3 \cdot 3 \cdot 3 = 3^3 = 27$. For negative exponents the rule is $a^{-n} = 1/a^n$. For example, $3^{-4} = 1/3^4 = 1/3 \cdot 3 \cdot 3 \cdot 3 = 1/81$
Integers	The set of whole numbers and their opposites.
Irrational numbers	A real number that cannot be written as a simple fraction (e.g., rational: 1.5=3/2, 7=7/1, .333=1/3. Irrational: $\pi=3.141592\ldots\ldots$, $\sqrt{3}=1.732050\ldots$ they are not repeating decimals and don't create simple fractions.
isosceles triangle	A triangle that has exactly 2 congruent sides.
Like terms	Terms whose variables (and their exponents) are the same.
Likely event	An event that is most likely to happen.
Line of best fit	A line on a graph showing the general directions that a group of points seem to be heading.
Linear equations	An equation for a line.
Markdowns	The amount by which a price is reduced.
Markups	An amount added to the cost price to determine the selling price; broadly: profit.
Mean absolute deviation	In statistics, the absolute deviation of an element of a data set is the absolute difference between that element and a given point.

Adapted from Granite School District (graniteschooldistrict.org)

Measure of center	An average; a single value that is used to represent a collection of data. Three commonly used types of averages are mode, median, and mean. (also known as measure of central tendency or measure of average)
measure of variation	A measure of how much a collection of data is spread out. Commonly used types include range and quartiles. (Also known as spread or dispersion.)
Multiplicative inverse	Another name for reciprocal. When you multiply a number by it multiplicative inverse you get 1 (e.g., 3/2 x 2/3 = 1)
Negative association	A relationship between two variables in which one variable increases as the other decrease. In a scatter plot, negatively associated data tend to follow a pattern from the upper left to the lower right.
Non-linear functions	A function that can't be represented in a line. For example, a quadratic function is a nonlinear function because its graph forms a parabola.
non-zero divisor	A quantity, not including zero, by which another quantity, the dividend, is to be divided.
Obtuse triangle	A triangle that contains one angle with a measure greater than 90º (obtuse angle) and two acute angles.
Ordered pair	A pair of numbers that gives the coordinates of a point on a grid in this order (horizontal coordinate, vertical coordinate). (also known as a coordinate pair)
origin	The intersection of the x- and y- axes in a coordinate plane, described by the ordered pair (0, 0).
Outlier	In a data set, the value that "lies outside" (is much smaller or larger than) most of the other values in a set of data.
Output	The output of a function is called the range.
Percent	A special ratio that compares a number to 100 using the symbol %.
Percent decrease	Percent decrease is a measure of percent change, which is the extent to which a variable loses value. It is found by comparing the initial (or before) and final (or after) quantities according to a specific formula. It is assumed that both the initial and the final quantities are positive (larger than 0).
Percent error	Percent error is the difference between a predicted value and the actual value. Percent errors tell you how close or how far you came to the actual answer.
Percent increase	Percent increase is a measure of percent change, which is the extent to which a variable gains value. It is found by comparing the initial (or before) and final (or after) quantities according to a specific formula. It is assumed that both the initial and the final quantities are positive (larger than 0).
Plane sections	The area created by a plane cutting through a solid.
Polygon	A closed plane figure formed from line segments that meet only at their endpoints.
Polynomials	An expression of more than two algebraic terms (examples: $x^2 + 7x - 3$ and $4a^3 + 7a^2 + a$).

population	The entire collection of items that is the focus of concern. A population can be of any size and while the items need not be uniform, the items must share at least one measureable feature.
Positive association	A relationship between two variables in which one variable increases as the other also increases. In a scatter plot, positively associated data tend to follow a pattern from the lower left to the upper right.
Prediction	To state in advance on the basis of observation, experience, or scientific reason.
Prism	A three-dimensional figure that has two congruent and parallel faces that are polygons. The remaining faces are parallelograms.
Probability	The chance that a particular outcome will occur, measured as a ratio of the total possible outcomes.
Proportion	An equation showing that two ratios are equivalent.
Proportional relationship	A relationship between two variable quantities x and y, where y is a constant multiple (k) of x. This can be expressed in the simple equation, $y = kx$.
Protractor	A tool used to measure and draw angles.
Pyramid	A polyhedron whose base is a polygon and whose other faces are triangles that share a common vertex.
Pythagorean Theorem	Pythagorean theorem is the relationship between the sides of a right triangle. It states that the square of the hypotenuse (the side opposite of the right triangle) is equal to the sum of the squares of the other two sides:
$a^2 + b^2 = c^2$.	
Quadrants	The four sections of a coordinate grid that are separated by the axes.
Quadrilateral	A four-sided polygon.
Quotient	The result of the division of one quantity by another.
Radical	The symbol $\sqrt{}$. This symbol is used to determine a square root, cube root, fourth root, etc. It represents the number of times the radicand is multiplied by itself. For example $\sqrt{4} = 2$, $\sqrt[3]{27}=3$, and $\sqrt[4]{64}=4$.
Random sample	A selection that is chosen randomly (purely by chance, with no predictability.)
Range (of a function)	The set of all possible output values (usually the "y" variable or sometimes expressed at f(x)), which result from using a particular function.
rate	A ratio comparing two different units.
Rate of change	A ratio between the change in one variable relative to a corresponding change in another; graphically, the rate of change is represented by the slope of a line.
Ratio	A comparison of two numbers using division.

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Rational coefficient	A rational number which multiplies a variable.
Rational number	A number that can be expressed as a ratio of two integers.
Reflection	A transformation in which a geometric figure is reflected across a line, creating a mirror image.
Relative frequency	The ratio of the actual number of favorable events to the total possible number of events; often taken as an estimate of probability.
Repeating decimal	A decimal which has repeating digits or a repeating pattern of digits.
Right prism	A prism where the lateral faces are at right angles to the base.
Right rectangular prism	A prism with 6 rectangular faces where the lateral edge is perpendicular to the plane of the base.
Right rectangular pyramid	A pyramid that has its apex aligned directly above the center of its rectangular base.
Right triangle	A triangle that has one 90° angle.
Rotation	A transformation in which a figure turns around a fixed center point. In other words, one point on the plane, the center of rotation, is fixed and everything else on the plane rotates around that point by a given angle.
Sample space	The set of all possible outcomes of a random process.
Scale	A drawing of an object or structure showing all parts in the same proportion of their true size.
Scalene triangle	A triangle that has no congruent sides.
Scatter plot	A graph of plotted points that show the relationship between two sets of data.
Scientific notation	A mathematical expression used to represent a decimal number between 1 and 10 multiplied by ten so you can write large numbers using less digits; or divide by ten so you can write very small numbers. Examples of scientific notation: 4×10^3 represents 4000 and 5.678×10^{-6} represents .000005678.
Sequence	A list of numbers or objects that follow particular pattern. For example 3, 6, 9, 12, 15, 18, 21 represents a pattern "add 3 to the previous number".
Similar figures	Similar figures have the same shape (but not necessarily the same size) and the corresponding sides are proportional and corresponding angels are the same.
Similarity	Two figures are similar when the only difference is the size. The corresponding sides are proportional and the corresponding angles are the same.
simple interest	A quick method for calculating the interest charge on a loan.
Slope	The measure of the steepness of a line, or a section of a line, connecting two points typically represented by variable m. It represents the change in the rise divided by the change in the run.
Slope intercept form	$Y = mx + b$ where m is the slope of the line and b is the *y-intercept* of the line.

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simulation	Carrying out a simple experiment to collect data.
Solution set	A set of values that satisfy a given set of equations or inequalities.
spread	A measure of how much a collection of data is spread out. Commonly used types include range and quartiles. (Also known as measures of variation or dispersion.)
square root	The square root of a number is a value that, when multiplied by itself, give the number. For example 4 x 4 = 16, so a square root of 16 is 4 or $\sqrt{16} = 4$. The $\sqrt{}$ symbol represents the positive square root.
statistical variability	A variability or spread in a variable or a probability distribution. Common examples of measures of statistical dispersion are the variance, standard deviation, and interquartile range.
statistics	The science of collecting, organizing, representing, and interpreting data.
substitution	The replacement of the letters in an algebraic expression with known values.
supplementary angles	If the sum of the measure of two angles is 180°, then the two angles are **supplementary**. If two angles form a straight line, then they are supplementary.
surface area	
	Surface area: The total area of the faces (including the bases) and curved surfaces of a solid figure.
	Cube: SA = 6 • (length of side)²
	Right Prism: SA = lateral area + area of two ends
	Right circular cylinder: SA = $(2 \cdot \pi \cdot r^2) + (2 \cdot \pi \cdot r \cdot h)$, where h = the height, r = the radius
	Surface area formula chart visit website: basic mathematics surface area formula
tax	A fee charged by a government on a product, income, or activity.
Terminating decimal	A decimal which has a finite number of digits.
Translation (transformation)	A term used in geometry to describe a function that moves an object a certain distance. The object is not altered in any other way. It is not rotated, reflected or resized. In a translation, every point of the object must move in the same direction and for the same distance.
transversal	A line that cuts across two or more lines.
tree diagrams	A diagram shaped like a tree used to display sample space by using one branch for each possible outcome.
triangle	A polygon with three angles and three sides.
unit rate	A rate with a denominator of 1.
unlikely event	An event that will probably not happen. An outcome with a probability between 0 and 0.5.
variable	A quantity that changes or can have different values. A symbol, usually a letter, that can stand for a variable quantity.

vertical angle	A pair of angles is said to be **vertical** if the angles share the same vertex and are bounded by the same pair of lines but are opposite to each other. Such angles are congruent and thus have equal measure.
volume	
	Volume: The number of cubic units it takes to fill a figure.
	Cone: $V = 1/3\ \pi \cdot r^2 \cdot h$, where r = the radius, h = the height of the cone
	Cylinder: $V = (\pi \cdot r^2) \cdot h$, where r = the radius
	Sphere: $V = 4/3 \cdot \pi \cdot r^3$, where r – the radius
	Cube: $V = s^3$, where s = the side length
	Right Prism: $V = B \bullet H$, where B = area of the base, H = the height
	Volume formulas visit website: basic mathematics volume formulas
x-axis	In a Cartesian grid, the horizontal axis.
x-coordinate	In an ordered pair, the value that is always written first.
x-intercept	Where the graph crosses the x-axis.
y-axis	In a Cartesian grid, the vertical axis.
y-coordinate	In an ordered pair, the value that is always written second.
y-intercept	Where the graph crosses the y-axis.