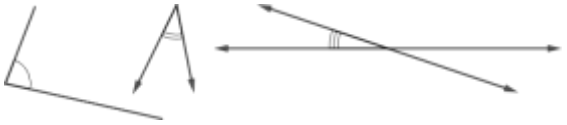
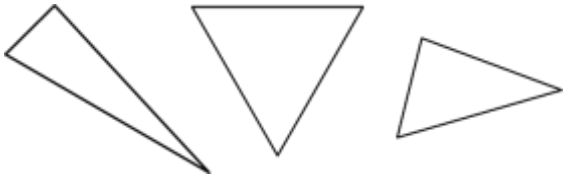
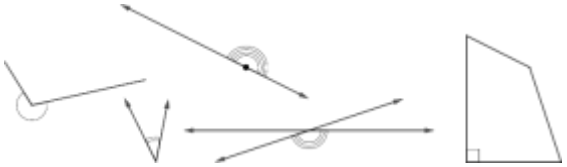
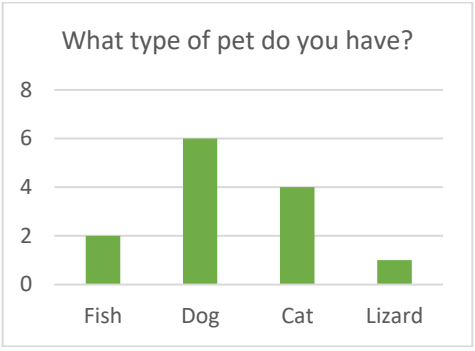
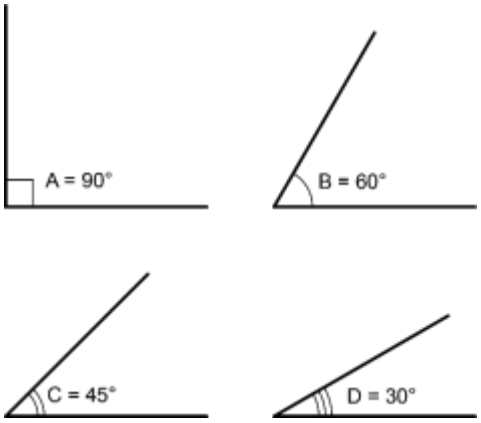
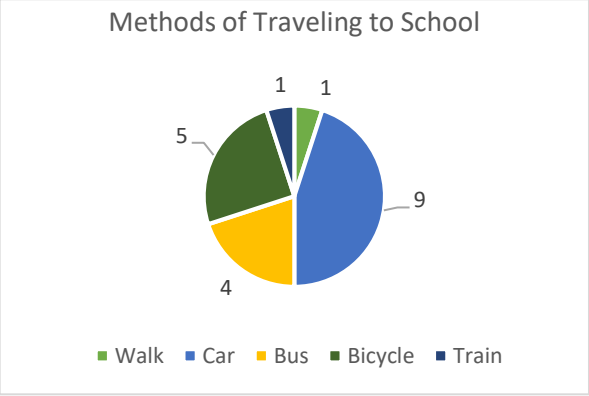
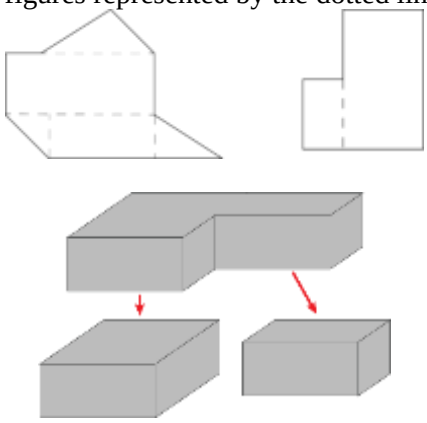
Appendix C: K-12 Mathematics Glossary

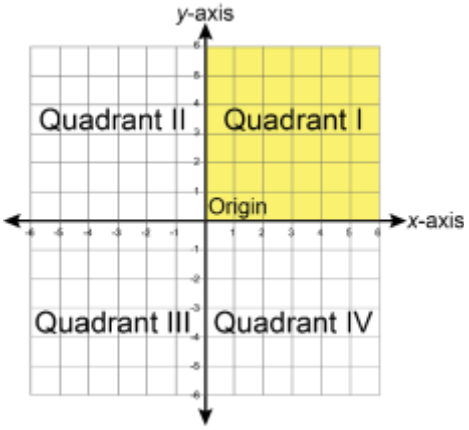
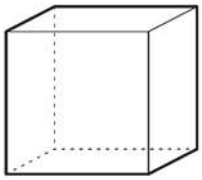
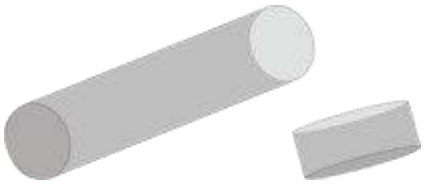
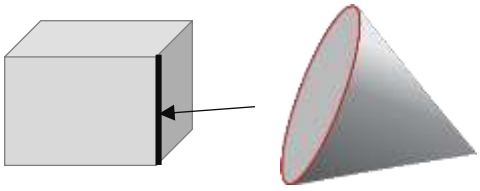
K-5 Mathematics Glossary

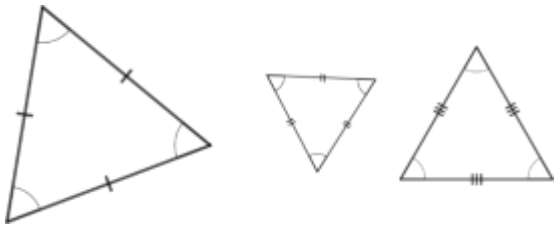
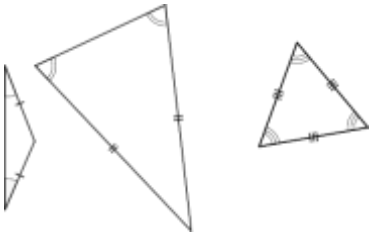
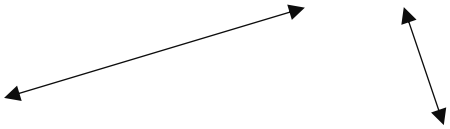
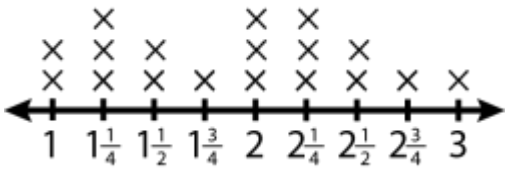
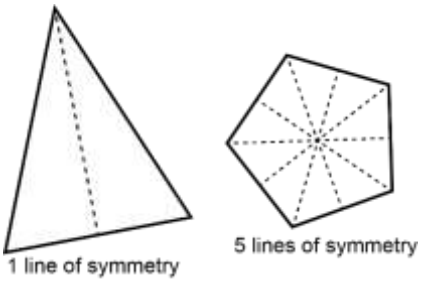
The following glossary is a reference list provided for teachers to support the expectations of the Florida's B.E.S.T Standards for Mathematics for Kindergarten to grade five. This glossary is not intended to comprise a comprehensive vocabulary list for teachers or students. The Florida Department of Education (FDOE) recognizes that there may be alternative definitions for some terms that are also mathematically correct, however, the intention here is to provide common language and shared understanding among all stakeholders in the state of Florida.

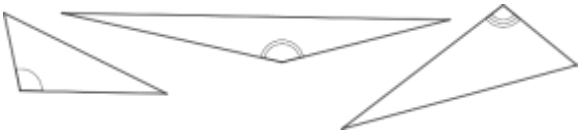
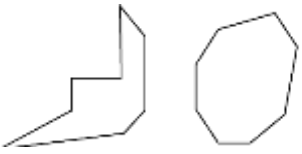
Vocabulary	**Definition**	**Example**
acute angle	An angle larger than 0º and smaller than 90º.	
acute triangle	A triangle with all interior angles smaller than 90°.	
angle	Angles are formed wherever two lines, segments, or rays intersect.	
area model	A rectangular diagram that utilizes the decomposition of side lengths by place value to multiply numbers using the distributive property.	32×12 can be thought of as $(30 \times 10) + (30 \times 2) + (2 \times 10) + (2 \times 2)$ which is equivalent to 384. This is demonstrated in the area model below. 10 | 2 30 | 300 | 60 2 | 20 | 4
associative property of addition	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$(5 + 6) + 9 = 5 + (6 + 9)$
associative property of multiplication	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$(2 \times 3) \times 8 = 2 \times (3 \times 8)$

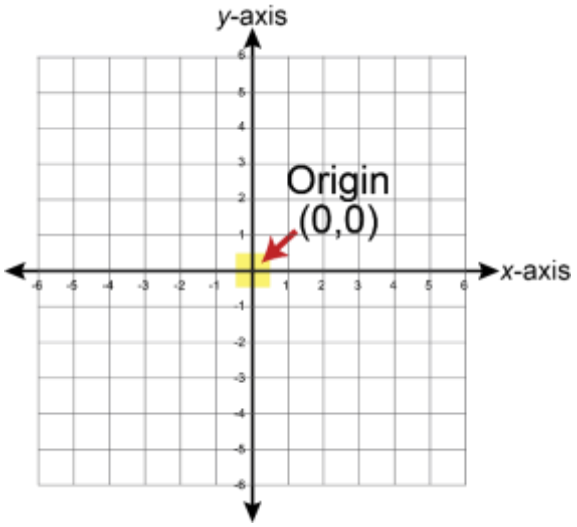
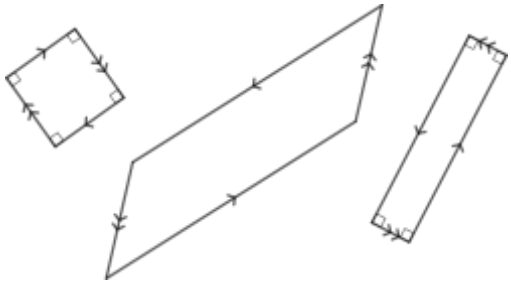
Vocabulary	Definition	Example
automaticity	In mathematical activities, the ability to act according to an automatic response or pattern which is easily retrieved from long-term memory. Usually results from repetition and practice.	
bar graph	A visual display of categorical data values where each category is represented by a bar whose height represents the number in that category.	
benchmark angles	Widely recognized angles that are used to classify and estimate angle measures, including 30º, 45º, 60º, 90º.	
Cardinality Principle	The understanding that when the objects in a collection are being counted, the last count word in the counting sequence represents the total number of items in the collection.	
categorical data	A type of data which is divided into groups.	Examples of categorical data are type of pet, hair color, favorite sport/game, etc.
circle	A perfectly round two-dimensional figure, where all points on the circle are equidistant from the center.	

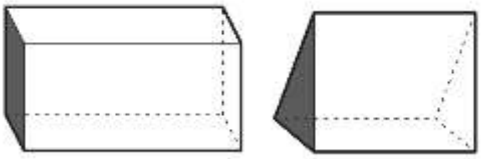
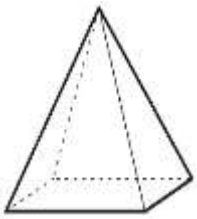
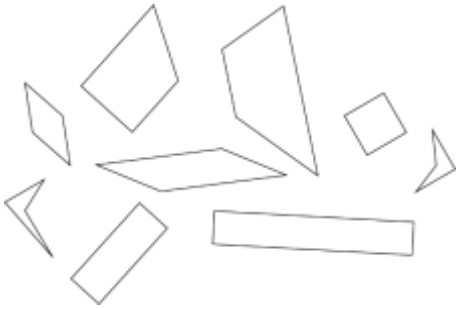
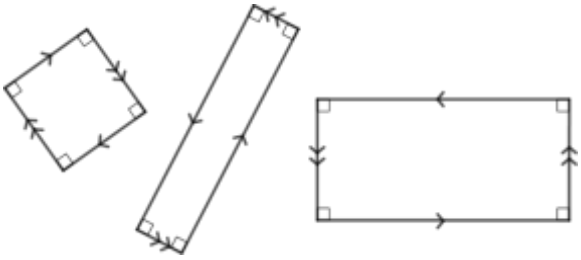
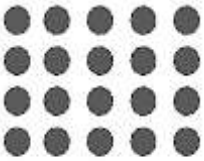
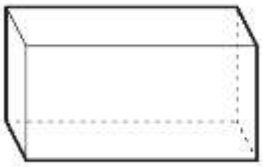
Vocabulary	Definition	Example
circle graph	A visual display of categorical data. The whole set of data is represented by the circle and its interior. The categories are represented by fractional parts of the circle. Also called a pie chart.	
commutative property of addition	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$2 + 3 = 5$ and $3 + 2 = 5$
commutative property of multiplication	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$2 \times 3 = 6$ and $3 \times 2 = 6$
composite figure	A two- or three-dimensional figure that can be decomposed into smaller figures.	A rectangle can be decomposed into two right triangles. The polygons below could be decomposed into the smaller figures represented by the dotted lines. 
composite number	A whole number greater than 1 that has at least one whole-number divisor other than 1 and itself.	4 is composite because it has three unique, whole-number divisors: 1, 2, 4 24 is composite because it has eight unique, whole-number divisors: 1, 2, 3, 4, 6, 8, 12, 24 23 is **not** composite because it only has two unique, whole-number divisors: 1, 23 1 is **not** composite because it only has one unique, whole-number divisor: 1

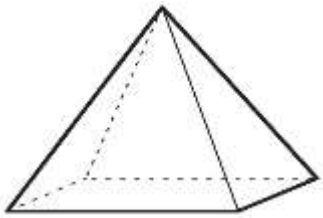
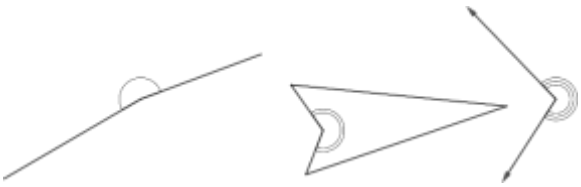
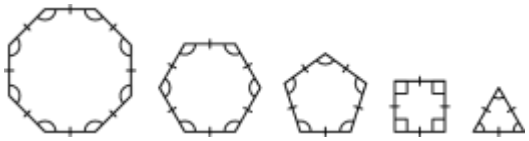
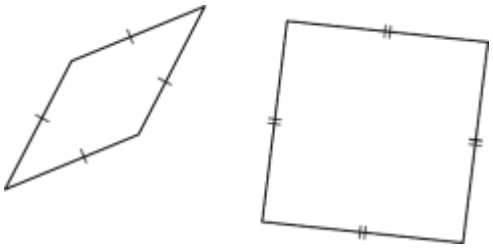
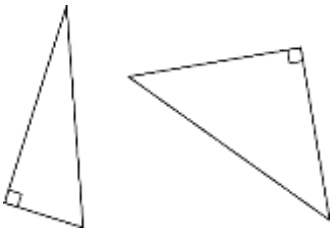
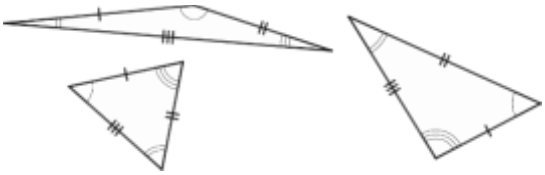
Vocabulary	Definition	Example
coordinate plane (first quadrant)	An infinite two-dimensional space bounded on two sides by two perpendicular scaled axes. The axes intersect at the origin. Each point in the coordinate plane is represented by a pair of coordinates that represent the distances from each axis. The origin is represented by the coordinate pair (0,0).	
cube	A rectangular prism with six congruent square faces.	
cylinder (right circular)	A figure containing two congruent, parallel, circular bases whose edges are connected by a perpendicular curved surface.	
distributive property	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$6(2+3) = (6 \times 2) + (6 \times 3)$
dividend	A quantity that is to be divided.	In the equation $6 \div 2 = 3$, 6 is the dividend.
divisor	The number by which another number is divided.	In the equation $6 \div 2 = 3$, 2 is the divisor.
edge	In a figure, the segment or curve where two faces intersect.	
equal sign	The equal sign is placed between two quantities or expressions to indicate they have the same value or represent the same value.	$7 = 3 + 4$ $4 \times 2 = 5 + 3$ $5+? = 17$ is true if $? = 12$.
equation	A mathematical relation statement where two equivalent expressions and values are separated by an equal sign.	$55 \div 5 = 24 - 13$

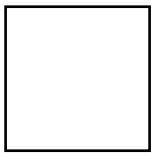
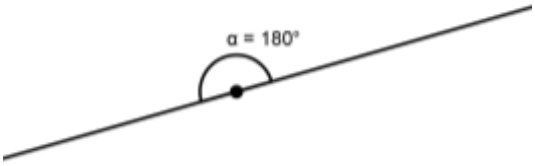
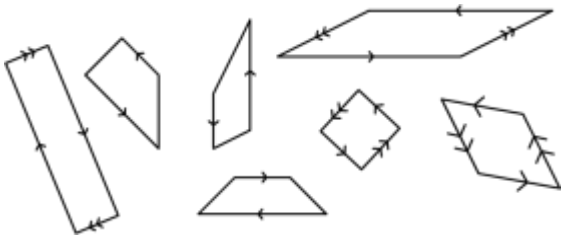
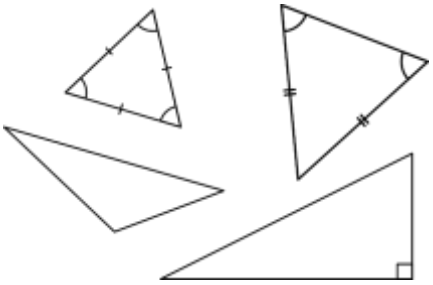
Vocabulary	Definition	Example
equilateral triangle	A triangle with three equal-length sides and three 60-degree interior angles. Also known as an equiangular triangle.	
expression	A mathematical statement containing numerals, operators, grouping symbols and symbols or variables for unknown values. An expression does not contain an equal sign or inequality symbol.	4×2 $\frac{9}{5} - \frac{1}{3}$
factors (of positive whole numbers)	Whole numbers into which a positive whole number can be evenly divided.	1, 3, 5, and 15 are factors of 15 One is a factor of every whole number.
hexagon	A polygon containing exactly six sides and six vertices.	
isosceles triangle	A triangle containing **at least** two equal length sides and two equal interior angle measures. Sub-class includes equilateral triangles.	
line	In geometry, a straight path that extends infinitely in both directions. Represented in diagrams as line with arrowheads at both ends.	
line plot	A method of visually displaying a distribution of data values where each data value is shown as a dot or mark above a number line. Also known as a dot plot.	
line of symmetry	A line that divides a figure into two parts with the same shape and size. When the figure is folded along the line of symmetry, the two parts match.	

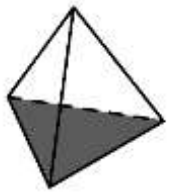
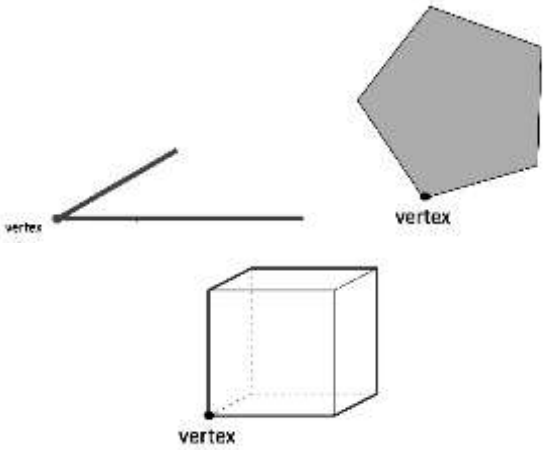
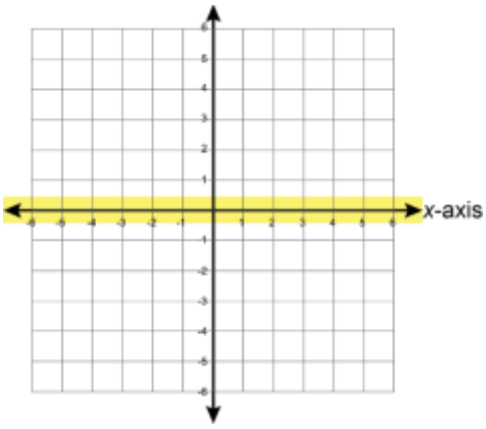
Vocabulary	Definition	Example
mean	The arithmetic average of a set of numbers found by dividing the sum of all values by the number of values. It is a measure of central tendency.	For the data set $\{2.3, 5.1, 9, 9, 11.5, 12, 17.1\}$, the mean is 9.4. For the data set $\{8, 9, 27, 11, 5, 3\}$, the mean is 10.5.
median	The middle of an ordered list of values. If the list has an odd number of values, it is the middle value of that list. If the list has an even number of values, it is the mean of the two middle values. It is a measure of central tendency.	For the data set $\{23, 25, 26, 37, 40, 42, 44, 44, 48, 90\}$, the median is 41. For the data set $\{4, 7, 8, 11, 14, 16, 20\}$, the median is 11.
mode	The value 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 a measure of central tendency.	For the data set $\{3.3, 5, 13.7, 6.2, 9.3, 9\}$, there is no mode. For the data set $\left\{\frac{2}{5}, \frac{1}{2}, \frac{7}{2}, \frac{2}{5}, \frac{1}{5}\right\}$, the mode is $\frac{2}{5}$. For the data set $\{32, 73, 88, 35, 42, 73, 33, 88, 64\}$, the modes are 73 and 88.
natural number	The counting numbers {1, 2, 3, 4, 5…}.	
number line	A straight line with evenly spaced marks labeled with successive numbers. Values are plotted as points on the line.	
obtuse angle	An angle larger than 90º and smaller than 180º.	
obtuse triangle	A triangle containing one interior angle larger than 90º.	
octagon	A polygon containing exactly eight sides and eight vertices.	

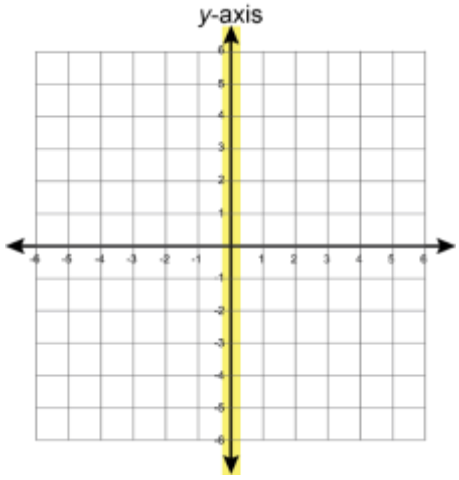
Vocabulary	Definition	Example
origin	In the coordinate place, the location where the x-axis and y-axis intersect. The coordinates of the origin are (0,0).	
parallelogram	A quadrilateral containing two pairs of parallel sides. A member of the following shape classes: polygons, quadrilaterals, trapezoids. Sub-classes include rectangles, rhombi, and squares.	
pentagon	A polygon containing exactly five sides and five vertices.	
perimeter (of a polygon)	The sum of the side lengths of a polygon.	Rectangle: $P = l + l + w + w$ $P = 2l + 2w$ Square: $P = s + s + s + s$ $P = 4s$
polygon	A closed two-dimensional figure composed of at least three straight sides and three vertices.	
prime number	A whole number greater than 1 that is not divisible by any whole number other than 1 and itself.	17 is a prime number. 16 is not a prime number.

Vocabulary	Definition	Example
prism (right)	A figure with two parallel bases that are the same shape and size. The bases are connected by rectangular faces that are perpendicular to the bases. A box with identical polygons on each end.	
pyramid (regular)	A figure containing a polygonal base and triangular faces. The triangular faces have the same size and shape and they connect the sides of the base to a common point called the apex.	
quadrilateral	A polygon with exactly four sides and four vertices. Sub-classes include trapezoids, parallelograms, rectangles, rhombi, and squares.	
rectangle	A quadrilateral containing four right angles. Rectangles may be oblong or square. A member of the following shape classes: polygons, quadrilaterals, trapezoids, parallelograms. Squares form a sub-class.	
rectangular array	An arrangement of objects or symbols in rows and columns. All rows have an equal number and all columns have an equal number.	 5 + 5 + 5 + 5
rectangular prism	A prism with rectangular bases. Cubes form a sub-class.	

Vocabulary	Definition	Example
rectangular pyramid	A pyramid with a rectangular base.	
reflex angle	An angle larger than 180º and smaller than 360º.	
regular polygon	A polygon containing all equal-length sides and all equal-measure interior angles.	
rhombus	A quadrilateral containing four equal-length sides. A member of the following shape classes: polygons, quadrilaterals, trapezoids, parallelograms. Squares form a sub-class.	
right angle	An angle measuring exactly 90º.	
right triangle	A triangle containing an interior right angle.	
scalene triangle	A triangle containing three unequal side lengths and three unequal angle measures.	
sphere	A three-dimensional figure with all points equidistant from a point called the center.	

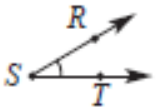
Vocabulary	Definition	Example
square	A quadrilateral with four right angles and four equal-length sides. A member of the following shape classes: polygons, quadrilaterals, trapezoids, parallelograms, rectangles, rhombuses.	
stem-and-leaf plot	A table that organizes data by place value to compare data frequencies.	The data set {1, 4, 5, 8, 10, 11, 13, 27, 27, 28, 30, 31, 31, 40, 44, 63, 66} can be organized in a stem-and-leaf plot as shown below. stem | leaf 0 | 1, 4, 5, 8 1 | 0, 1, 3, 2 | 7, 7, 8 3 | 0, 1, 1, 4 | 0, 4, 5 | 6 | 3, 6
straight angle	An angle measuring exactly 180º.	
trapezoid	A quadrilateral with **at least** one pair of parallel sides. A member of the following shape classes: polygons, quadrilaterals. Sub-classes include parallelograms, rectangles, rhombuses, and squares.	
triangle	A polygon with exactly three sides and three vertices.	
triangular prism	A prism with triangular bases.	

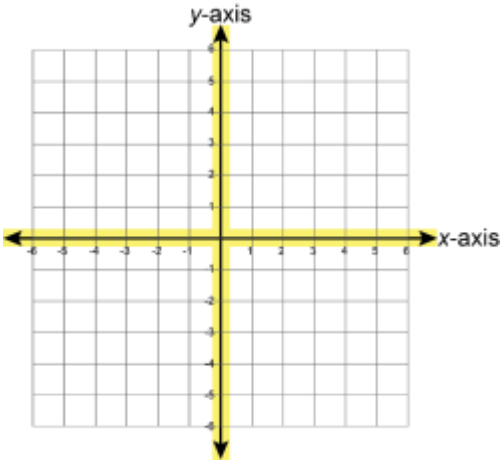
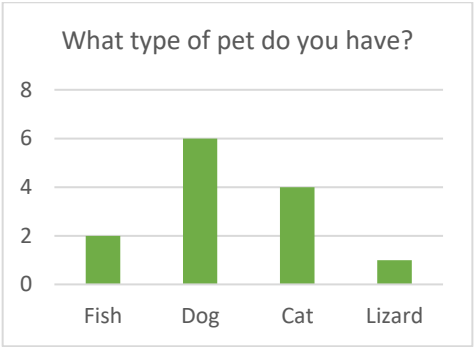
Vocabulary	Definition	Example
triangular pyramid	A pyramid with a triangular base.	
vertex (of a figure)	The point at which the rays or sides of an angle, the sides of a two-dimensional figure, or the edges of a three-dimensional figure meet.	
whole number	The natural numbers and zero.	{0, 1, 2, 3, 4, 5,…}.
x-axis	The horizontal axis in certain graphs, and in the coordinate system. In the coordinate system, the x-axis divides positive y-values from negative y-values, and the y-value of any point lying on the x-axis equals zero.	

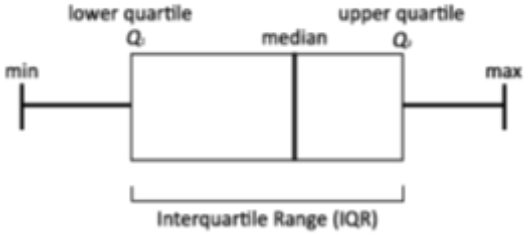
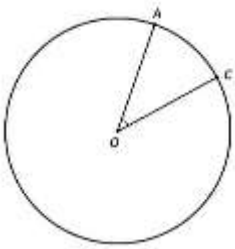
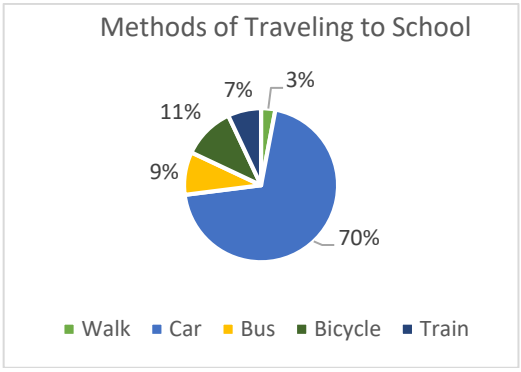
Vocabulary	Definition	Example
y-axis	The vertical axis in certain graphs, and in the coordinate system. In the coordinate system, the y-axis divides positive x-values from negative x-values, and the x-value of any point lying on the y-axis equals zero.	

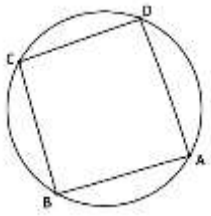
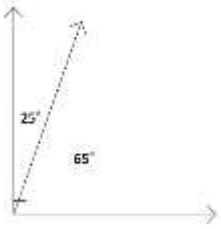
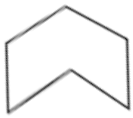
6-12 Mathematics Glossary

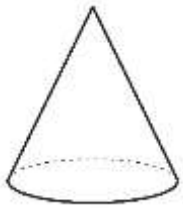
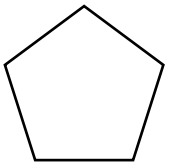
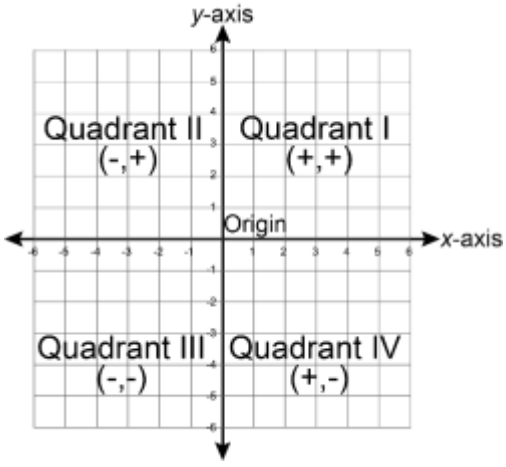
The following glossary is a reference list provided for teachers to support the expectations of the Florida's B.E.S.T Standards for Mathematics for grades six to twelve. This glossary is not intended to comprise a comprehensive vocabulary list for teachers or students. The Florida Department of Education (FDOE) recognizes that there may be alternative definitions for some terms that are also mathematically correct, however, the intention here is to provide common language and shared understanding among all stakeholders in the state of Florida.

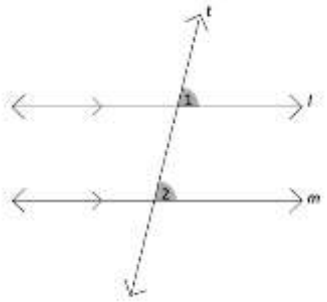
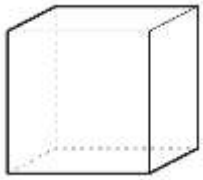
Vocabulary	**Definition**	**Example**
absolute value	A number's distance from zero (0) on a number line. Distance is expressed as a positive value.	$\|3\| = 3$ and $\|-3\| = 3$
additive identity property	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$5 + 0 = 5$
additive inverse property	Refer to Properties of Operations, Equality and Inequality (Appendix D).	In the equation $3 + -3 = 0$, 3 and -3 are additive inverses of each other
addition property of equality	Refer to Properties of Operations, Equality and Inequality (Appendix D).	If $k - 3 = 7$, then $k - 3 + 3 = 7 + 3$.
addition property of inequality	Refer to Properties of Operations, Equality and Inequality (Appendix D).	If $k - 3 > 7$, then $k - 3 + 3 > 7 + 3$.
algorithm	A step-by-step way to solve a problem.	
analytic geometry	The branch of mathematics that uses functions and relations to study geometric phenomena.	The description of ellipses and other conic sections in the coordinate plane by quadratic equations
angle ($\angle$)	Angles are formed wherever two lines, segments or rays intersect. Angles are measured in degrees.	In the figure, the angle can be named $\angle S, \angle RST, \angle TSR$. 
area	The measure, in square units, of the inside region of a closed two-dimensional figure.	The area of a rectangle with dimensions 5 units by 8 units is 40 square units.
arithmetic sequence	A sequence of numbers in which each consecutive pair of numbers has a common difference.	The nth term of an arithmetic sequence with the first term a_1 and common difference d is given by $a_n = a_1 + (n-1)d$, where n is a positive integer.

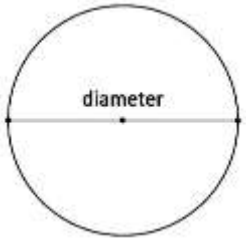
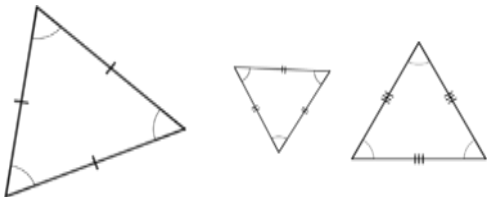
Vocabulary	Definition	Example
association	A way to describe the form, direction or strength of the relationship between the two variables in a bivariate data set. For numerical data, descriptions include linear or nonlinear; positive or negative; strong or weak. For categorical data, descriptions include strong or weak.	
associative property	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$(5 + 6) + 9 = 5 + (6 + 9)$ $(2 \times 3) \times 8 = 2 \times (3 \times 8)$
axes (of a graph)	The horizontal and vertical number lines used in a coordinate plane system.	
bar graph	A visual display of categorical data values where each category is represented by a bar whose height represents the number in that category. Bar graphs can be represented vertically or horizontally.	
base (of an exponent)	The number used as a factor in exponential form.	b^3 is the exponential form of $b \times b \times b$. The variable b is called the base, and the numeral 3 is called the exponent.
bivariate data	Data that measures two characteristics of a population.	hair color and eye color height and weight

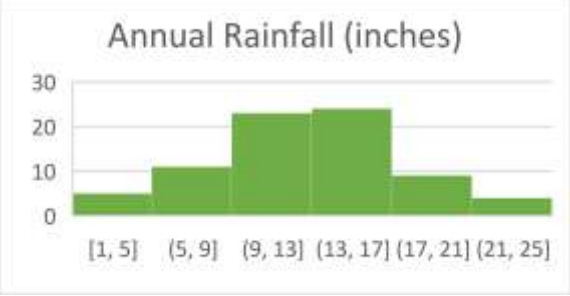
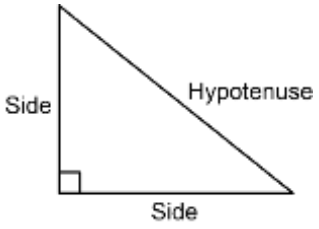
Vocabulary	Definition	Example
box plot	A plot displaying the spread or distribution of a data set using a five number summary, the minimum, lower quartile, median, upper quartile and maximum. It is also called a box-and-whisker plot.	
capacity	The amount of space that can be filled in a container. Both capacity and volume are used to measure three-dimensional spaces; however, capacity usually refers to fluid measures, whereas volume is measured in cubic units.	
categorical data	A type of data which is divided into groups. Categorical data are qualitative.	Examples of categorical data are type of pet, movie genre, favorite sport/game, etc.
central angle	An angle that has its vertex at the center of a circle with radii as its sides.	
circle graph	A visual display of categorical data. The whole set of data is represented by the circle and its interior. The categories are represented by fractional parts of the circle. Also called a pie chart.	
circumference	The distance around a circle.	A circle with radius 3 units has a circumference of 6π units.

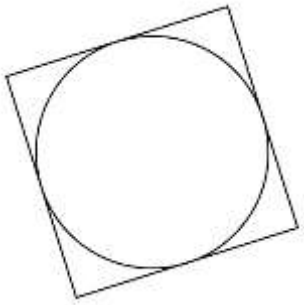
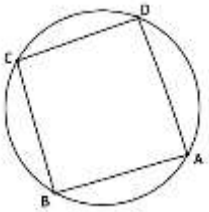
Vocabulary	Definition	Example
circumscribed circle	The smallest circle that includes a plane figure. If the figure is a polygon, then the circle must contain all of the vertices of the polygon. Not every polygon has a circumscribed circle, but all triangles and all regular polygons have circumscribed circles.	
cluster (data)	Data that are in a close group on a scatter plot or univariate numerical data that have similar values.	
coefficient	The number or constant that multiplies a variable in an algebraic expression. If no number is specified, the coefficient is 1.	Within the expression $4xy$, 4 is the coefficient. Within the equation $y = mx + b$, m is the coefficient of x.
commutative property (of addition or multiplication)	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$2 + 3 = 3 + 2$ $4 \times 7 = 7 \times 4$
complementary angles	Two angles whose measures sum to 90°.	
composite number	A whole number greater than 1 that has at least one whole-number factor other than one and itself.	4 is composite because it has three unique, whole-number factors: 1, 2, 4 24 is composite because it has eight unique, whole-number factors: 1, 2, 3, 4, 6, 8, 12, 24 23 is **not** composite because it only has two unique, whole-number factors: 1, 23 1 is **not** composite because it only has one unique, whole-number factor: 1
compound inequality	A conjunction of two or more inequalities.	$-4 \leq x \leq \frac{3}{5}$
concave polygon	A polygon with one or more diagonals that have points outside the polygon. See convex polygon.	

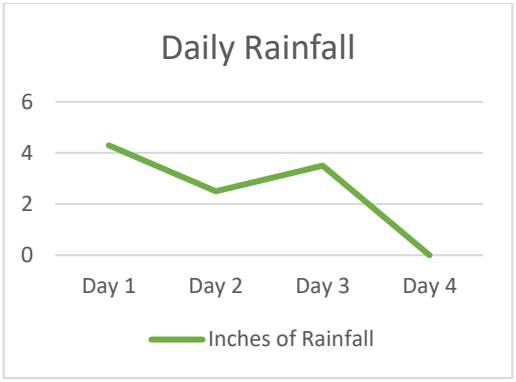
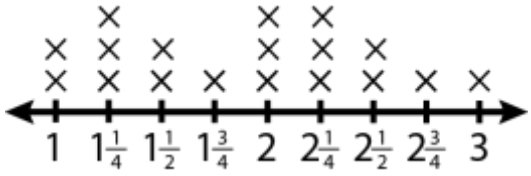
Vocabulary	Definition	Example
conditional relative frequency	The ratio of a joint relative frequency and a marginal relative frequency. Equivalently, the ratio of a relative frequency and a marginal frequency.	
cone	A three-dimensional figure with a circular base and an apex that is connected to the base by a collection of line segments that form a curved surface.	
congruent	Having exactly the same shape and size. Equivalently, two figures are congruent if one can be mapped to the other using a rigid transformation.	
constant of proportionality	The constant value of the ratio of two proportional quantities.	In the equation $y = kx$, k is the constant of proportionality.
converse of Pythagorean Theorem	If the lengths a, b and c of the three sides of a triangle satisfy the relationship $a^2 + b^2 = c^2$, then the triangle is a right triangle.	
convex polygon	A polygon with each interior angle measuring less than 180°. All diagonals of a convex polygon lie inside the polygon. See concave polygon.	
coordinate plane	A plane determined by two perpendicular number lines called axes. The axes intersect at the origin. Each point in the coordinate plane is represented by a pair of coordinates that represent the direction and distance from each axis. The origin is represented by the coordinate pair (0,0).	

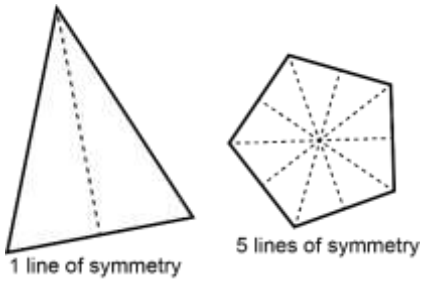
Vocabulary	Definition	Example
coordinate	A number used to locate a point on a number line. One of the numbers in an ordered pair, or triple, that locates a point on a coordinate plane or in coordinate space, respectively.	
corresponding angles	Angles that are in the same position on two parallel lines in relation to a transversal.	
cube	A rectangular prism with six congruent square faces.	
customary units	The units of measure used in the United States. • Customary units for length include inches, feet, yards, and miles. • Customary units for weight include ounces, pounds, and tons. • Customary units for volume include cubic inches, cubic feet, and cubic yards. • Customary units for capacity include fluid ounces, cups, pints, quarts, and gallons.	
cylinder (circular)	A figure containing two congruent, parallel, circular bases whose edges are connected by a curved surface. The net of the cylinder consists of a parallelogram and two circles.	
data	Values that are collected together for reference or analysis.	

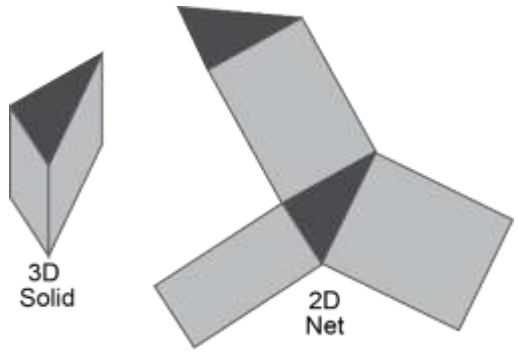
Vocabulary	Definition	Example
diameter	A line segment from any point on the circle passing through the center to another point on the circle.	
dilation	A proportional increase or decrease in size in all directions.	
distributive property	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$x(a + b) = ax + bx$
domain	The complete set of possible values of the input of a function or relation. The domain may vary depending on the context. See *range (of a relation or function)*.	In the relation $\{(-6, 1), (-1, 2), (4, 6.1), (6, -3)\}$, the domain is the set of numbers $\{-6, -1, 4, 6\}$.
equilateral triangle	A triangle with three equal-length sides and three 60° interior angles. Also known as an equiangular triangle.	
estimation	The use of methods to determine a reasonably accurate approximation, without calculating an exact answer.	
event	A set of possible outcomes resulting from an experiment. In general, an event is any subset of a sample space.	In the experiment of rolling a single six-sided die, an example of an event is {5, 6}. That is, the roll could be a 5 or a 6.
exponent (exponential form)	The number of times the base occurs as a factor.	b^3 is the exponential form of $b \times b \times b$. The variable b is called the base, and the numeral 3 is called the exponent.
exponential function	An exponential function is a function with a constant percent rate of change.	Exponential function can be written in the form $y = ab^x$, where a $\neq$ 0 and b $>$ 0.
experimental probability	The ratio of the number of times an event occurs to the total number of trials or times the activity is performed. Also called empirical probability.	

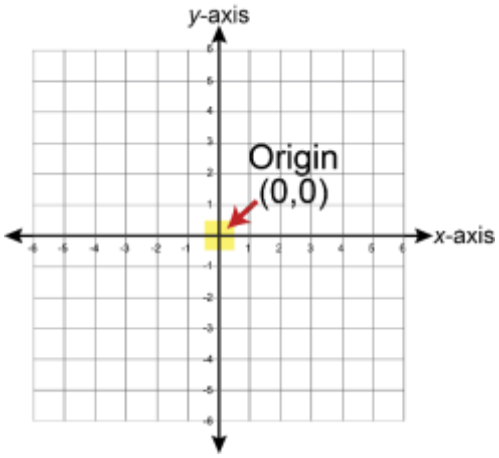
Vocabulary	Definition	Example
frequency table	A table that shows how often each item, number, or range of numbers occurs in a set of data.	<table><tr><td>Size</td><td>Tally Marks</td><td>Frequency</td></tr><tr><td>2</td><td>II</td><td>2</td></tr><tr><td>3</td><td>~~IIII~~</td><td>5</td></tr><tr><td>4</td><td>IIII</td><td>4</td></tr><tr><td>5</td><td>IIII</td><td>4</td></tr><tr><td>6</td><td>~~IIII~~ I</td><td>6</td></tr><tr><td>7</td><td>~~IIII~~ II</td><td>7</td></tr><tr><td>Total</td><td></td><td>28</td></tr></table>
function	A mathematical relation for which each element of the domain corresponds to exactly one element of the range.	
function notation	A notation that describes a function. For a function f when x is a member of the domain, the symbol $f(x)$ denotes the corresponding member of the range.	$f(x) = x + 3$
geometric sequence	A sequence of numbers in which each consecutive pair of numbers has a common ratio.	The nth term an of a geometric sequence with first term a_1 and common ratio r is given by $a_n = a_1 r^{(n-1)}$, where n is any positive integer, $a_1 \neq 0$ and $r \neq 0$.
greatest common factor (GCF) of two or more whole numbers	The largest whole number that evenly divides the given whole numbers.	7 is the greatest common factor of 14, 28 and 49.
histogram	A visual display of numerical data using bars along a number line with no spaces between the bars. The height of each bar represents either the frequency or relative frequency of data within that interval.	
hypotenuse	The longest side of a right triangle; the side opposite the right angle.	

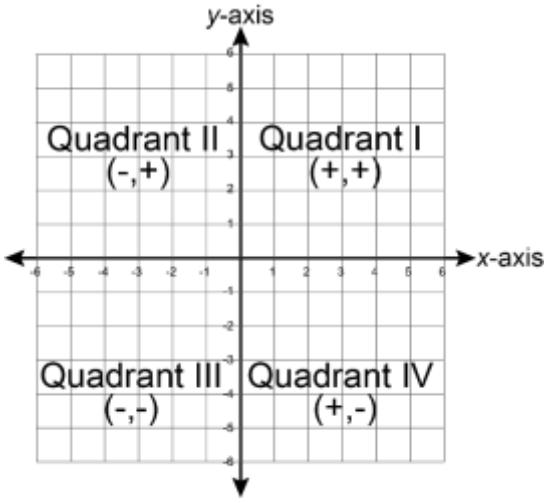
Vocabulary	Definition	Example
identity property of addition	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$0 + 4.25 = 4.25$
identity property of multiplication	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$\frac{11}{7} \times 1 = \frac{11}{7}$
inscribed angle in a circle	An angle which is formed in the interior of a circle when two chords share an endpoint.	
inscribed circle	The largest possible circle that can be contained in a plane figure. If the plane figure is a polygon, then the circle must be tangent to all of the sides of the polygon. Not every polygon has an inscribed circle, but all triangles and all regular polygons have inscribed circles.	
inscribed polygon in a circle	A polygon which has all of its vertices on a circle.	
integers	Whole numbers and their opposites.	$\{\ldots -4, -3, -2, -1, 0, 1, 2, 3, 4 \ldots\}$
intercept	The value of a variable when all other variables in the equation equal 0. On a graph, the values where a function crosses an axis.	
interquartile range (IQR)	A measure of variation in a set of numerical data, the interquartile range is the distance between the first and third quartiles of the data set. See *quartile* and *box plot*.	Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the interquartile range is $15 - 6 = 9$.
inverse functions	Two functions, $y = h(x)$ and $x = g(y)$, are said to be inverses when $g\big(h(x)\big) = x$ and $h\big(g(y)\big) = y$. The function inverse to $f(x)$ is denoted $f^{-1}(x)$.	

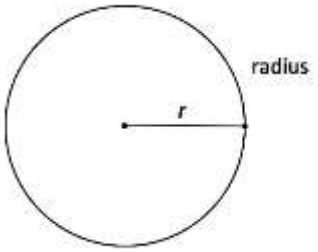
Vocabulary	Definition	Example
irrational number	A real number that cannot be expressed as a ratio of two integers.	$\sqrt{2}$ π
joint frequency	In a two-way table, joint frequency is the number of times a combination of two conditions occurs.	
joint relative frequency	Joint relative frequency is the ratio of the joint frequency and the total number of data points.	
least common multiple (LCM)	The lowest number that is a multiple of two or more given numbers.	The least common multiple of 6 and 9 is 18.
line of fit	A line drawn on a scatter plot to estimate the relationship between two sets of data. Also known as a trend line. See *scatter plot*.	
line graph	A graph that displays numerical data using connected line segments.	
line plot	A visual display of data values where each data value is shown as a dot or mark above a number line. Also known as a dot plot.	
linear expression (or linear equation)	A polynomial expression or equation that contains a term of degree 1, but no term of higher degree.	$7 + 6p$ $C = 6.45g - 78$
linear function	A function that has a constant rate of change.	A linear function can be written in the form $y = mx + b$.

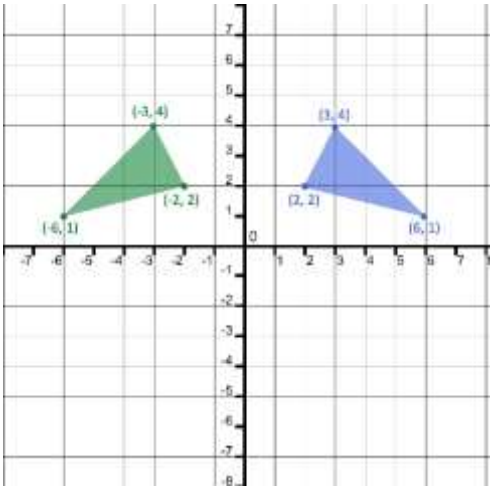
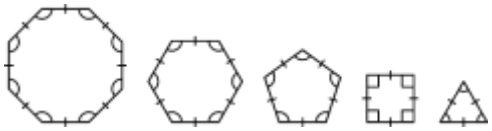
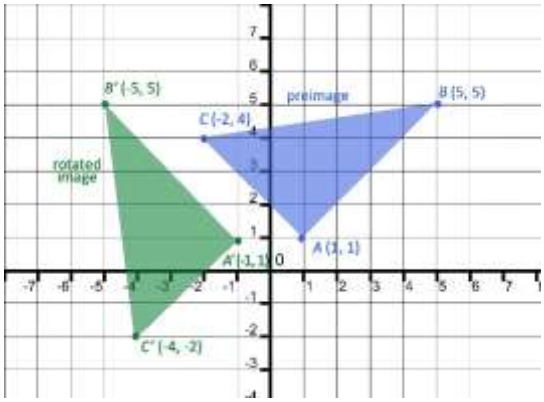
Vocabulary	Definition	Example
line of symmetry	A line that divides a figure into two congruent parts, so that the reflection of either part across the line maps precisely onto the other part.	
matrix	A rectangular array of numbers or variables.	$(a \quad b \quad c)$ $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$
mean	The arithmetic average of a set of numbers. It is a measure of central tendency.	For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the mean is 21.
measures of center	A numerical value used to describe the overall clustering of data in a set, or the overall central value of a set of data. The three most common measures of central tendency are the mean, median, and mode.	
measures of variability	A numerical value that measures how much a data set varies from a central value.	
median	The middle of an ordered list of values. If the list has an odd number of values, it is the middle value of that list. If the list has an even number of values, it is the average of the two middle values. It is a measure of central tendency.	For the data set $\{23, 25, 26, 37, 40, 42, 44, 44, 48, 90\}$, the median is 41. For the data set $\{4, 7, 8, 11, 14, 16, 20\}$, the median is 11.

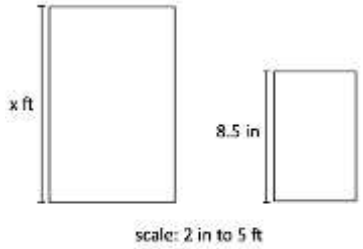
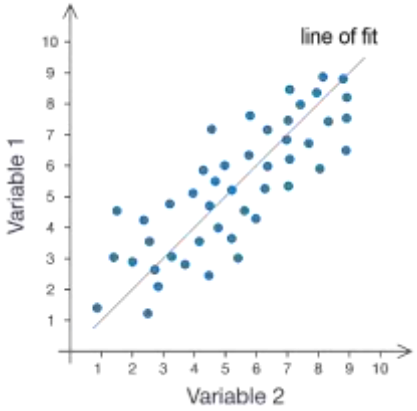
Vocabulary	Definition	Example
metric units	The units of measure used in most of the world. Like the decimal system, the metric system uses the base 10. • Metric units for length include millimeters, centimeters, meters, and kilometers. • Metric units for mass include milligrams, grams, and kilograms. • Metric units for volume include cubic millimeters, cubic centimeters, and cubic meters. • Metric units for capacity include milliliters, centiliters, liters, and kiloliters.	
mode	The value 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 a measure of central tendency.	For the data set $\{3.3, 5, 13.7, 6.2, 9.3, 9\}$, there is no mode. For the data set $\left\{\frac{2}{5}, \frac{1}{2}, \frac{7}{2}, \frac{2}{5}, \frac{1}{5}\right\}$, the mode is $\frac{2}{5}$. For the data set $\{32, 73, 88, 35, 42, 73, 33, 88, 64\}$, the modes are 73 and 88.
monomial	A polynomial with one term.	$5x^3$, 8, and $4xy$
multiplicative identity	Refer to Properties of Operations, Equality and Inequality (Appendix D).	$-9 \cdot 1 = -9$ $1\left(\frac{3}{2}\right) = \frac{3}{2}$
multiplicative inverse (reciprocal)	Refer to Properties of Operations, Equality and Inequality (Appendix D).	4 and $\frac{1}{4}$. Zero (0) has no multiplicative inverse.
net	A two-dimensional diagram that can be folded or made into a three-dimensional figure.	

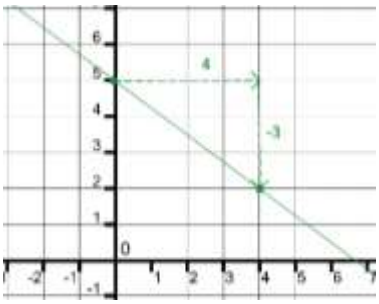
Vocabulary	Definition	Example
order of operations	The order of performing computations is to first work within grouping symbols using the order of operations. Then simplify terms with exponents. Next, while reading from left to right, perform multiplication and division in the order in which it appears. Finally, while reading from left to right, perform addition and subtraction in the order in which it appears.	$5^2 + (12 - 2) \div 2 - 3 \times 2$ $5^2 + (10) \div 2 - 3 \times 2$ $25 + 10 \div 2 - 3 \times 2$ $25 + 5 - 6$ $30 - 6$ 24
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 0.	
outlier	A value that is much higher or much lower than the other values in a set of data.	
percent of change	The difference between a final value and an initial value, expressed as a percentage of the initial value.	
percent error	The difference between the estimated number and the actual number as a percentage of the actual value.	If the estimate is 95 and the actual is 89, the percent error is $\frac{95-89}{89} \approx 6.74\%$.
pi (π)	The symbol designating the ratio of the circumference of a circle to its diameter. It is an irrational number. Common approximations are 3.14, $\frac{22}{7}$ or $\frac{355}{113}$.	
piecewise function	A function defined by multiple sub functions, each of which applies to a certain interval of the main function's domain.	An absolute value function, $y = \|x\|$, is an example of a piecewise function.

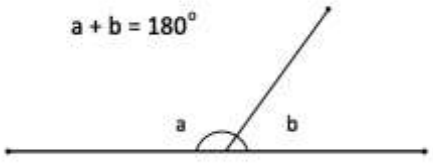
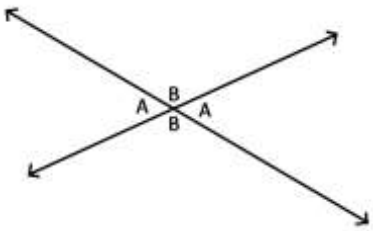
Vocabulary	Definition	Example
polynomials	The sum or difference of terms which have variables raised to non-negative integer powers and which have coefficients that may be real or complex.	$5x^3 - 2x^2 + x - 13$ $x^2y^3 + xy$ $(1 + i)a^2 + ib^2$
population (in data analysis)	The entire set of cases or individuals under consideration in a statistical analysis.	A poll given to a sample of voters is designed to measure the preferences of the population of all voters.
prime factorization	The expression of a number as the product of prime factors.	The prime factorization of 72 is $2 \times 2 \times 2 \times 3 \times 3$.
prime number	A whole number greater than 1 that is not divisible by any whole number other than 1 and itself.	17 is a prime number. 16 is not a prime number.
principal square roots	The principal square root is the positive square root of a positive real number.	
proportional relationships	A collection of pairs of numbers that are in equivalent ratios.	If $y = kx$, then y is said to be directly proportional to x and the constant of proportionality is k.
quadrant	Any of the four regions separated by the axes in a coordinate plane.	
quadratic expression (or quadratic equation)	A polynomial expression or equation that contains a term of degree 2, but no term of higher degree.	$8 - 4x + 9.2x^2$ $y - 8.3 = 3(x + 2.1)^2$
quadratic function	A polynomial function with degree of 2.	A quadratic function can be expressed in the form $y = ax^2 + bx + c$.

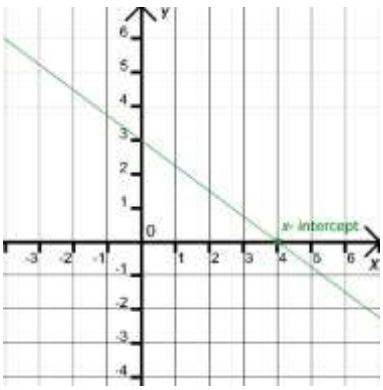
Vocabulary	Definition	Example
quartiles	For a data set with median M, the first quartile is the median of the data values less than M and the third quartile is the median of the data values greater than M. The second quartile is the median M.	
radius	A line segment extending from the center of a circle or sphere to a point on the circle or sphere.	
random sampling	A smaller group of people or objects chosen from a larger group or population by a process giving equal chance of selection to all possible people or objects, and all possible subsets of the same size.	
random variable	An assignment of a numerical value to each outcome in a sample space.	
range (of a data set)	The difference between the highest data value and the lowest data value.	For the data set $\{3.3, 5, 13.7, 6.2, 9.3, 9\}$, the range is 10.4.
range (of a relation or function)	The complete set of possible values of the output of a relation or function. See *domain*.	In the relation $\{(-6, 1), (-1, 2), (4, 6.1), (6, -3)\}$, the range is the set of numbers $\{-3, 1, 2, 6.1\}$.
rate	A ratio that compares two quantities of different units.	feet per second
rate of change	The ratio of change in one quantity to the corresponding change in another quantity.	Given the order pairs $(7, 5)$ and $(0, 11)$, the rate of change is $\frac{5-11}{7-0} = -\frac{6}{7}$.
rational expression	A quotient of two polynomials with a non-zero denominator.	$\frac{x^3-5x+1}{x^2+9}$
rational number	A real number that can be expressed as the ratio of two integers.	
real numbers	The set of all rational and irrational numbers.	

Vocabulary	Definition	Example
reflection	A transformation that produces the mirror image of a geometric figure across a line of reflection.	
regular polygon	A polygon that is both equilateral (all sides congruent) and equiangular (all angles congruent).	
relation	A set of input-output pairs.	
repeated experiment	A random experiment done with the same conditions and parameters as a previous one.	
rigid transformation	A transformation of points in space consisting of a sequence of one or more translations, reflections, or rotations. Rigid transformations preserve distances and angle measures (congruency).	
rotation	A transformation of a figure by turning it about a center point or axis. The amount of rotation can be expressed in the number of degrees. The direction of the rotation for two-dimensional figures can be expressed as clockwise or counterclockwise.	
sample space	In a probability model for a random process, a list of the individual outcomes that are to be considered.	

Vocabulary	Definition	Example
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 to produce 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.	
scatter plot	A graph in the coordinate plane representing a set of bivariate numerical data that is used to observe the relationship between two variables. See *line of fit*.	
scientific notation	A 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 at least 1 and less than 10.	$7.59 \times 10^5 = 759{,}000$
set-builder notation	A shorthand used to write sets, often sets with an infinite number of elements. The set $\{x: x > 0\}$ is read aloud, "the set of all x such that x is greater than 0." It is read aloud exactly the same way when the colon : is replaced by the vertical line | as in $\{x\|x > 0\}$.	$\{x: x \neq 3\}$ - the set of all real numbers except 3. $\{x \mid x < 5\}$ - the set of all real numbers less than 5. $\{2n + 1: n$ is an integer$\}$ - the set of all odd integers (e.g. ..., $-3, -1, 1, 3, 5$...).
significant digits	The nonzero digits of a number and the zeros that are included between them or any trailing zeros that are considered to be precise.	

Vocabulary	Definition	Example
similarity	Having exactly the same shape but not necessarily the same size. Equivalently, two figures are similar if one can be mapped to the other using a rigid transformation combined with a dilation, including cases with a scale factor of 1.	
simple interest	A method of computing interest. Interest is computed from the (original) principal alone no matter how much money has accrued so far.	$A = P(1 + rt)$, where $A =$ final amount $P =$ principal, or original amount $t =$ number of years $r =$ rate of interest per year
simulation	A simulation is an approximate imitation of a statistical experiment, often done with a computer program to examine the statistics of a large quantity of trials.	
slope	The ratio of the change in the vertical direction (y direction) to change in the horizontal direction (x direction), often expressed as $\frac{\Delta y}{\Delta x}$.	
statistical question	A question that can be answered by collecting data. Often there will be variability in the data.	What time of the day do students get home from school? What type of toppings do 7th graders like on their pizza?
stem-and-leaf plot	A table that organizes data by place value to compare data frequencies.	The data set {1, 4, 5, 8, 10, 11, 13, 27, 27, 28, 30, 31, 31, 40, 44, 63, 66} can be organized in a stem-and-leaf plot as shown below. stem | leaf 0 | 1, 4, 5, 8 1 | 0, 1, 3, 2 | 7, 7, 8 3 | 0, 1, 1, 4 | 0, 4, 5 | 6 | 3, 6

Vocabulary	Definition	Example
supplementary angles	Two angles with measures the sum of which is exactly 180°.	
theoretical probability	A number between 0 and 1 representing the likelihood of an event in a theoretical model based on a sample space. If all outcomes in the sample space are equally likely, then theoretical probability of an event is the ratio of the number of outcomes in the event to the number of outcomes in the sample space.	
translation	A transformation in which every point in a figure is moved in the same direction and by the same distance.	If the preimage has the coordinates $(2, 4)$, $(4, 2)$ and $(2, 1)$ and is translated to the left 6 units, its image will have the coordinates $(-4, 4)$, $(-2, 2)$ and $(-4, 1)$.
transversal	A line that intersects two or more lines in the same plane at different points.	
trigonometric function	Any of the six functions (sine, cosine, tangent, cotangent, secant, cosecant) that, for an acute angle of a right triangle, may be expressed in terms of ratios of sides of the right triangle.	
unit rates	A ratio comparing a number of units of one quantity to one unit of a second quantity.	
vertical angles	The opposite angles formed when two lines intersect.	

Vocabulary	Definition	Example
x-intercept	The value of x at the point where a line or graph intersects the x-axis. The value of y is 0 at this point.	
y-intercept	The value of y at the point where a line or graph intersects the y-axis. The value of x is 0 at this point.