

Standard 3: Geometry Benchmark 4: Geometry from an Algebraic Perspective

Organizer	Indicator lead in phrase/wording	Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Seventh Grade	Eighth Grade	Ninth and Tenth Grade
Number Lines and Coordinate Planes	locates, plots, identifies, uses, organizes, recognizes and/or examines...	K.1...whole numbers from 0 through 20 on a horizontal number line	K.1...whole numbers from 0 through 100 on a segment of a number line (horizontal/vertical)	K.1...whole numbers from 0 through 1,000 on a segment of a number line (horizontal/vertical)	K.2a & K.3...points on a coordinate plane using two positive whole numbers and points as ordered pairs in the first quadrant of a coordinate plane	K.2...points in the first quadrant of a coordinate plane to identify locations	K.1...points on a number line using integers	K.2...integer data using a T-table and plots the ordered pairs in all four quadrants of a coordinate plane	K.2.a...all four quadrants of a coordinate plane to identify in which quadrant or on which axis a point lies when given the coordinates of a point	▲K.1a-b...the coordinate plane to list several ordered pairs on the graph of a line and find the slope of the line and that ordered pairs that lie on the graph of an equation are solutions to that equation	K.1...two- and three-dimensional figures and their attributes including the graphs of functions on a coordinate plane using various methods including mental math, paper and pencil, concrete objects, and graphing utilities or other appropriate technology
	identifies, plots, uses, and/or determines...				K.2.b...points on a coordinate plane using a letter and a positive whole number	▲K.3...points as whole number ordered pairs in the first quadrant of a coordinate plane	K.3...points as ordered pairs in the first quadrant of a coordinate plane	▲K.3...all four quadrants of the coordinate plane to identify and plot the ordered pairs of integer values on a given graph	K.2b-d...all four quadrants of a coordinate plane to plot, identify, and list through five ordered pairs of a given line	▲K.1c...the coordinate plane to recognize that ordered pairs that do not lie on the graph of an equation are not solutions to that equation	K.2...if a given point lies on the graph of a given line or parabola without graphing and justifies the answer

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Number Lines and Coordinate Planes	organize, plot, examines, and/or recognizes...					K.4... whole number data using a T-table and plots the ordered pairs in the first quadrant of a coordinate plane	K.4...whole number data using a T-table and plots the ordered pairs in the first quadrant of a coordinate plane		K.3 & K.4...a given linear equation with whole number coefficients and constants and a whole number solution to find the ordered pairs, organize the ordered pairs using a T-table, and plot the ordered pairs on the coordinate plane and characteristics of two-dimensional figures on a coordinate plane using various methods including mental math, paper and pencil, concrete objects, and graphing utilities or other appropriate technology	K.2 & K.3...a given linear equation with integer coefficients and constants and an integer solution to find the ordered pairs, organizes the ordered pairs using a T-table, and plots the ordered pairs on a coordinate plane and characteristics of two-dimensional figures on a coordinate plane using various methods including mental math, paper and pencil, concrete objects, and graphing utilities or other appropriate technology	K.3, ▲K.6, & K.7...the slope of a line from a list of ordered pairs on the line and explains how the graph of the line is related to its slope, the equation of a line and transforms the equation into slope-intercept form in order to identify the slope and y-intercept and uses this information to graph the line, and the equation $y = ax^2 + c$ as a parabola, and characteristics of the parabola including opens upward or downward, steepness, the vertex, maximum and minimum values, and line of symmetry, and sketches the graph of the parabola

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Number Lines and Coordinate Planes	solves, uses, recognizes, and/or explains...				A.1. solves real-world problems using coordinate planes (coordinate grids) and map grids that have positive whole number and letter coordinates	A.2. solves real-world problems by plotting whole number ordered pairs in the first quadrant of a coordinate plane (coordinate grid)	A.2. solves real-world problems by plotting ordered pairs in the first quadrant of a coordinate plane (coordinate grid)			K.1.e. uses the coordinate plane to: solve simple systems of linear equations	▲K.4. finds and explains the relationship between the slopes of parallel and perpendicular linesA.3. recognizes and explains the effects of scale changes on the appearance of the graph of an equation involving a line or parabola
	counts, describes, represents, uses, explains, and/or finds...	K.2...forwards and backwards from a given whole number from 0 through 10 on a number line	K.2 & K.3...a given whole number from 0 to 100 as coming before or after another number on a number line and a number line to model addition and counting using whole numbers from 0 to 100	K.2 & K.3...the distance between two whole numbers from 0 through 1,000 on a segment of a number line and a segment of a number line to model addition and subtraction using whole numbers from 0 through 1,000	K.1...a number line to model the basic multiplication facts through the 5s and the multiplication facts of the 10s	K.1...a number line to model whole number multiplication facts from 1 x 1 through 12 x 12 and corresponding division facts	K.2...mathematical relationships between whole numbers, fractions, and decimals and where they appear on a number line	K.1...a number line to order rational numbers	K.1...the distance between the points on a number line by computing the absolute value of their difference	▲K.1.d...the coordinate plane to: determine the length of a side of a figure drawn on a coordinate plane with vertices having the same x- or y-coordinates	K.5...the Pythagorean Theorem to find distance
	solves, represents, generates, and/or translates...	A.1...real-world problems involving counting whole numbers from 0 through 20 using a number line	A.1...real-world problems involving counting and adding whole numbers from 0 to 50 using a number line	A.1...real-world problems involving counting, adding, and subtracting whole numbers from 0 through 1,000 using a segment of a number line		A.1...real-world problems that involve distance and location using coordinate planes and map grids with positive whole number and letter coordinates	A.1...real-world problems that involve distance and location using coordinate planes and map grids with positive whole number and letter coordinates	A.1...real-world problems that involve distance using a number line with integer values, a coordinate plane to find the perimeter of squares, rectangles, and area of triangles, squares, and rectangles	A.1 & A.2a-b...real-world problems using a coordinate plane to find perimeter of squares and rectangles, circumference of circles, area of circles, parallelograms, triangles, squares, and rectangles	A.1 & A.2...distance problems (including the use of the Pythagorean theorem, but not necessarily the distance formula) and between the written, numeric, algebraic, and geometric representations	A.1 & A.2...real-world problems that involve distance and two-dimensional geometric figures including parabolas in the form $ax^2 + c$, between the written, numeric, algebraic, and geometric representations

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Number Lines and Coordinate Planes	recognizes and/or explains...										A.3 & A.4...the effects of scale changes on the appearance of the graph of an equation involving a line or parabola and how changes in the constants and/or leading coefficients within the equation of a line or parabola affects the appearance of the graph of the equation

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locates, plots, identifies, uses, organizes, recognizes and/or examines...	K.1...graphs of linear, quadratic, and absolute value functions on a coordinate plane using various methods including mental math, paper and pencil, and graphing utilities or other appropriate technology		K.1...graphs of linear, quadratic, absolute value, exponential, logarithmic, rational, and radical functions on a coordinate plane using various methods including mental math, paper and pencil, and graphing utilities or other appropriate technology					K.2.a...all four quadrants of a coordinate plane to identify in which quadrant or on which axis a point lies when given the coordinates of a point
identifies, plots, uses, and/or determines...	K.2...if a given point lies on the graph of a given line or parabola without graphing and justifies the answer		K.2...if a given point lies on the graph of a given line or parabola without graphing and justifies the answer					▲K.3...all four quadrants of the coordinate plane to identify and plot the ordered pairs of integer values on a given graph

Indicator lead in phrase/wording	Algebra I	Geometry	Algebra II	Trigonometry	Statistics	Calculus	Applied Math I	Applied Math II
<p>organize, plot, examines, and/or recognizes...</p>	<p>K.3, ▲K.6, & K.7...the slope of a line from a list of ordered pairs on the line and explains how the graph of the line is related to its slope, the equation of a line and transforms the equation into slope-intercept form in order to identify the slope and y-intercept and uses this information to graph the line, and the equation $y = ax^2 + c$ as a parabola, and characteristics of the parabola including opens upward or downward, steepness, the vertex, maximum and minimum values, and line of symmetry, and sketches the graph of the parabola</p>		<p>K.3, ▲K.6, & K.7...the slope of a line from a list of ordered pairs on the line and explains how the graph of the line is related to its slope, the equation of a line and transforms the equation into slope-intercept form in order to identify the slope and y-intercept and uses this information to graph the line, and the equation $y = ax^2 + c$ as a parabola, and characteristics of the parabola including opens upward or downward, steepness, the vertex, maximum and minimum values, and line of symmetry, and sketches the graph of the parabola</p>					<p>K.4...whole number data using a T-table and plots ordered pairs and linear equations.</p>

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solves, uses, recognizes, and/or explains...	▲ K.4. finds and explains the relationship between the slopes of parallel and perpendicular lines A.3. recognizes and explains the effects of scale changes on the appearance of the graph of an equation involving a line or parabola		▲ K.4. finds and explains the relationship between the slopes of parallel and perpendicular lines A.3. recognizes and explains the effects of scale changes on the appearance of the graph of an equation involving a line or parabola					
counts, describes, represents, uses, explains, and/or finds...	K.5...the Pythagorean Theorem to find distance		K.5...the Pythagorean Theorem to find distance	K.5...the Pythagorean Theorem to find distance and to convert between rectangular and polar form.				
solves, represents, generates, and/or translates...	A.1 & A.2...real-world problems that involve distance and two-dimensional geometric figures including parabolas in the form $ax^2 + bx + c$, between the written, numeric, algebraic, and geometric representations		A.1 & A.2...real-world problems that involve distance and two-dimensional geometric figures including parabolas in the form $ax^2 + bx + c$, between the written, numeric, algebraic, and geometric representations				A.1...real-world problems involving counting, adding, and subtracting rational numbers	A.1...real-world problems involving counting, adding, and subtracting rational numbers

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recognizes and/or explains...	A.3 & A.4...the effects of scale changes on the appearance of the graph of an equation involving a line or parabola and how changes in the constants and/or leading coefficients within the equation of a line or parabola affects the appearance of the graph of the equation		A.3 & A.4...the effects of scale changes on the appearance of the graph of an equation involving a line, parabola, absolute value function, exponential function, logarithmic function, rational/radical function, and how changes in the constants and/or leading coefficients within the equation affects the graph of the equation					