Unit 8: Connecting Algebra and Geometry

A. Parallel and Perpendicular Lines

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Prove using formulas (G.GPE.4)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing •Connecting •Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	Using coordinate geometry and the slope, distance and midpoint formulas to prove **all** of the following • Segments on a coordinate plane are congruent • Segments on a coordinate plane are perpendicular • Segments on a coordinate plane are parallel	Using coordinate geometry and the slope, distance and midpoint formulas to prove **two** of the following • Segments on a coordinate plane are congruent • Segments on a coordinate plane are perpendicular • Segments on a coordinate plane are parallel	Using coordinate geometry and the slope, distance and midpoint formulas to prove **one** of the following • Identify if segments on a coordinate plane are congruent • Identify If segments on a coordinate plane are perpendicular • Segments on a coordinate plane are parallel	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Prove and use parallel and perpendicular lines (G.GPE.5)		Prove **a pair of lines** are parallel or perpendicular using slope Write the equation of a line that is parallel **and** perpendicular to a given line that passes through a given point	**Given the slope of 1 line**, prove if a pair of lines are parallel or perpendicular **Write** the equation of a line that is parallel **or** perpendicular to a given line that passes through a given point	**Given the slope of a pair of lines**, identify the lines are parallel or perpendicular **Identify** the equation of a line that is parallel or perpendicular to a given line that passes through a given point	
Construction of lines and angles (G.CO.12, G.CO.13)		Use a variety of tools to perform all of the following: • Bisect a segment • Bisect an angle • Construct the perpendicular bisector of a segment • Construct an equilateral triangle	Use a variety of tools to perform 3 of the following: • Bisect a segment • Bisect an angle • Construct the perpendicular bisector of a segment • Construct an equilateral triangle	Use a variety of tools to perform 2 of the following: • Bisect a segment • Bisect an angle • Construct the perpendicular bisector of a segment • Construct an equilateral triangle	

G.GPE.4 Use coordinates to prove simple geometric theorems algebraically.

G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

G.CO.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

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B. Perimeter and Area

CCSS	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Perimeter and area (G.GPE.7)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	Using coordinate geometry and the Pythagorean, slope, distance and midpoint formulas to do both of the following • find the perimeter of polygons. • find the area **of polygons using** triangles and rectangles	Using coordinate geometry and the Pythagorean, slope, distance and midpoint formulas to do **both** of the following • find the perimeter of polygons. • find the area of triangles and rectangles	Using coordinate geometry and the Pythagorean, slope, distance and midpoint formulas to do **one** of the following • find the perimeter of polygons. • find the area of triangles and rectangles	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1

G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.★