Geometry High School Math Solution
Alignment to Oklahoma Academic Standards

CARNEGIE LEARNING

OKLAHOMA ACADEMIC STANDARDS			MIDDLE SCHOOL MATH SOLUTION TEXTBOOK			MATHia		
Cluster	**Standard**	**Description**	**Course**	**Chapter**	**Lesson (page number)**	**Module**	**Unit**	**Workspace**
G.RL.1 Use appropriate tools and logic to evaluate mathematical arguments.	G.RL.1.1	Understand the use of undefined terms, definitions, postulates, and theorems in logical arguments/ proofs	Geometry	2: Introduction to Proof	2.2 And Now From a New Angle (151)	2: Segments, Angles, and Lines	1: Introduction to Proofs with Segments and Angles	1: Introduction to Proofs
	G.RL.1.2	Analyze and draw conclusions based on a set of conditions using inductive and deductive reasoning. Recognize the logical relationships between a conditional statement and its inverse, converse, and contrapositive.	Geometry	2: Introduction to Proof	2.1 A Little Dash of Logic (135)			
				8: Using Congruence Theorems	8.4 Making Some Assumptions			
	G.RL.1.3	Assess the validity of a logical argument and give counterexamples to disprove a statement	Geometry	2: Introduction to Proof	2.1 A Little Dash of Logic (135)			
G.2D.1 Discover, evaluate and analyze the relationships between lines, angles, and polygons to solve real-world and mathematical problems; express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts, or illustrations.	G.2D.1.1	Apply the properties of parallel and perpendicular lines, including properties of angles formed by a transversal, to solve real-world and mathematical problems and determine if two lines are parallel, using algebraic reasoning and proofs.	Geometry	1: Tools of Geometry	1.5 Did You Find a Parking Space? (61) 1.6 Making Copies-- Just as Perfect as the Original (75)	1: Tools of Geometry	3: Parallel and Perpendicular Lines	1: Introduction to Parallel and Perpendicular Lines 2: Modeling Parallel and Perpendicular Lines
				2: Introduction to Proof	2.4 What's Your Proof? (191) 2.5 A Reversed Condition (201)	2: Segments, Angles, and Lines	2: Lines Cut by a Transversal	1: Classifying Angles Formed by Transversals 2: Calculating Angles Formed by Transversals 3: Calculating Angles Formed by Multiple Transversals
							3: Parallel Lines Theorems	1: Proving Parallel Lines Theorems 2: Proving the Converses of Parallel Lines Theorems 3: Using Parallel Lines Theorems
	G.2D.1.2	Apply the properties of angles, including corresponding, exterior, interior, vertical, complementary, and supplementary angles to solve real-world and mathematical problems using algebraic reasoning and proofs.	Geometry	2: Introduction to Proof	2.2 And Now From (a New Angle (151) 2.3 Forms of Proof (169) 2.4 What's Your Proof? (191) 2.5 A Revered Condition (201)	1: Tools of Geometry	4: Angle Properties	1: Calculating and Justifying Angle Measures 2: Calculating Angle Measures
						2: Segments, Angles, and Lines	1: Introduction to Proofs with Segments and Angles	3: Connecting Steps in Angle Proofs 4: Using Angle Theorems
	G.2D.1.3	Apply theorems involving the interior and exterior angle sums of polygons and use them to solve real-world and mathematical problems using algebraic reasoning and proofs.	Geometry	10: Properties of Quadrilaterals	10.4 Interior Angles of a Polygon (789) 10.5 Exterior Angles of a Polygon (801)			
	G.2D.1.4	Apply the properties of special quadrilaterals (square, rectangle, trapezoid, isosceles trapezoid, rhombus, kite, parallelogram) and use them to solve real-world and mathematical problems involving angle measures and segment lengths using algebraic reasoning and proofs.	Geometry	10: Properties of Quadrilaterals	10.1 Squares and Rectangles (741) 10.2 Parallelograms and Rhombi (757) 10.3 Kites and Trapezoids (771) 10.6 Quadrilateral Family (813) 10.7 Name That Quadrilateral (827)	6: Parallelograms	1: Properties of Parallelograms	1: Understanding Parallelograms 2: Determining Parts of Quadrilaterals and Parallelograms with Numbers 3: Determining Parts of Quadrilaterals and Parallelograms with Expressions
							2: Parallelogram Proofs	1: Proofs About Parallelograms

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G.2D.1 (cont'd)	G.2D.1.5	Use coordinate geometry to represent and analyze line segments and polygons, including determining lengths, midpoints, and slopes of line segments.	Geometry	1: Tools of Geometry	1.2 Let's Move (17) 1.3 Treasure Hunt (35) 1.4 It's All About Angles (51) 1.5 Did You Find a Parking Spot? (61) 1.7 What's the Point? (87)	1: Tools of Geometry	2: Distances on the Coordinate Plane	1: Deriving the Distance Formula 2: Calculating Distances using the Distance Formula 3: Partitioning Segments Proportionately 4: Calculating Perimeter and Area using the Distance Formula
				3: Perimeter and Area of Geometric Figures on the Coordinate Plane	3.1 Transforming to a New Level (227) 3.2 Looking for Something Familiar in a New Way (235) 3.3 Grasshoppers Everywhere! (255) 3.4 Leavin' On a Jet Plane (271) 3.5 Composite Figures on the Coordinate Plane (287)			
				5: Properties of Triangles	5.1 Name That Triangle (379)			
				10: Properties of Quadrilaterals	10.7 Name That Quadrilateral (827)			
	G.2D.1.6	Apply the properties of polygons to solve real-world and mathematical problems involving perimeter and area (e.g., triangles, special quadrilaterals, regular polygons up to 12 sides, composite figures).	Geometry	3: Perimeter and Area of Geometric Figures on the Coordinate Plane	3.1 Transforming to a New Level (227) 3.2 Looking for Something Familiar in a New Way (235) 3.3 Grasshoppers Everywhere! (255) 3.4 Leavin' On a Jet Plane (271) 3.5 Composite Figures on the Coordinate Plane (287)	1: Tools of Geometry	2: Distances on the Coordinate Plane	4: Calculating Perimeter and Area using the Distance Formula
				10: Properties of Quadrilaterals	10.3 Kites and Trapezoids (771) 10.6 Quadrilateral Family (813)			
	G.2D.1.7	Apply the properties of congruent or similar polygons to solve real-world and mathematical problems using algebraic and logical reasoning.	Geometry	6: Similarity Through Transformations	6.1 Big and Small (437) 6.2 Similar Triangles or Not? (451) 6.3 Keep It in Proportion (463) 6.4 Geometric Mean (481) 6.5 Proving the Pythagorean Theorem (489) 6.6 Indirect Measurement (495)	5: Similarity, Right Triangles, and Trigonometry	1: Similar Triangles	1: Understanding Similarity 2: Calculating Corresponding Parts of Similar Triangles 3: Proofs Using Similar Triangles
				7: Congruence Through Transformations	7.1 Slide, Flip, Turn: The Latest Dance Craze? (513) 7.2 All the Same to You (535) 7.3 Side-Side-Side (543) 7.4 Side-Angle-Side (551) 7.5 You Shouldn't Make Assumptions (561) 7.6 Ahhhh... Sorry We Didn't Include You (567) 7.7 Congruent Triangles in Action (579)	4: Congruence	2: Triangle Congruence	1: Introduction to Triangle Congruence 2: Proving Triangles Congruent using SAS and SSS 3: Proving Triangle Congruent using AAS and ASA 4: Proving Triangles Congruent using HL and HA 5: Using Triangle Congruence 6: Proving Theorems using Congruent Triangles

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G.2D.1 (cont'd)	G.2D.1.8	Construct logical arguments to prove triangle congruence (SSS, SAS, ASA, AAS and HL) and triangle similarity (AA, SSS, SAS).	Geometry	7: Congruence Through Transformations	7.3 Side-Side-Side (543) 7.4 Side-Angle-Side (551) 7.5 You Shouldn't Make Assumptions (561) 7.6 Ahhhh ... Sorry We Didn't Include You (567) 7.7 Congruent Triangles in Action (579)	4: Congruence	2: Triangle Congruence	1: Introduction to Triangle Congruence 2: Proving Triangles Congruent using SAS and SSS 3: Proving Triangle Congruent using AAS and ASA 4: Proving Triangles Congruent using HL and HA 5: Using Triangle Congruence 6: Proving Theorems using Congruent Triangles
	G.2D.1.9	Use numeric, graphic and algebraic representations of transformations in two dimensions, such as reflections, translations, dilations, and rotations about the origin by multiples of 90, to solve problems involving figures on a coordinate plane and identify types of symmetry	Geometry	6: Similarity Through Transformations	6.1 Big and Small (437)			
				7: Congruence Through Transformations	7.1 Slide, Flip, Turn: The Latest Dance Craze? (513)			
G.3D.1 Solve real-world and mathematical problems involving three dimensional figures.	G.3D.1.1	Solve real-world and mathematical problems using the surface area and volume of prisms, cylinders, pyramids, cones, spheres, and composites of these figures. Use nets, measuring devices, or formulas as appropriate.	Geometry	4: Three Dimensional Figures	4.4 Volume of Cones and Pyramids (325) 4.5 Spheres a la Archimedes (337) 4.6 Turn UP the ... (343)	3: Three Dimensional Objects	2: Volume	1: Developing Volume Formulas 2: Calculating Volume of Cylinders 3: Calculating Volume of Pyramids 4: Calculating Volume of Cones 5: Calculating Volume of Spheres
			Course 2*	Module 5, topic 2: Three Dimensional Figures	2.3 Hey Mister, Got Some Bird Seed (M5-107) 2.4 The Sound of Surface Area (M5-129) 2.5 More Than Four Sides of the Story (M5-143)	5: Geometry	4: Volume of Pyramids	1: Calculating Volume of Pyramids 2: Using Volume of Pyramids
			Course 3*	Module 5, topic 2: Volume of Curved Figures	2.1 Drum Roll, Please (M5-85) 2.2 Cone of Silence (M5-99) 2.3 Pulled in All Directions (M5-113) 2.4 Silos, Frozen Yogurt, and Popcorn (M5-123)	8: Volume	1: Volume	1: Calculating Volume of Cylinders 2: Using Volume of Cylinders 3: Calculating Volume of Cones 4: Using Volume of Cones 5: Calculating Volume of Spheres 6: Using Volume of Spheres
	G.3D.1.2	Use ratios derived from similar three-dimensional figures to make conjectures, generalize, and to solve for unknown values such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.	Geometry	6: Similarity Through Transformation	6.1 Big and Small (437) 6.3 Keep It in Proportion (463) 6.4 Geometric Mean (481) 6.6 Indirect Measurement (495)			

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G.C.1 Solve real-world and mathematical problems using the properties of circles.	G.C.1.1	Apply the properties of circles to solve problems involving circumference and area, approximate values and in terms of Pi, using algebraic and logical reasoning	Course 2*	Module 1, Topic 1: Circles and Ratios	1.1 Pi: the Ultimate Ratio (M1-7) 1.2 That's a Spicy Pizza (M1-19) 1.3 Circular Reasoning (m1-33)	5: Geometry	3: Circles	1: Calculating Circumference and Area of Circles
	G.C.1.2	Apply the properties of circles and relationships among angles; arcs; and distances in a circle among radii, chords, secants and tangents to solve problems using algebraic and logical reasoning	Geometry	11: Circles	11.1 Riding a Ferris Wheel (839) 11.2 Take the Wheel (849) 11.3 Manhole Covers (863) 11.4 Color Theory (877) 11.5 Solar Eclipses (889)	7: Circles	1: Properties of Circles	1: Introduction to Circles
				12: Arcs and Sectors of Circles	12.1 Replacement for a Carpenter's Square (911) 12.2 Gears (923) 12.3 Playing Darts (935) 12.4 Circle K. Excellent! (959)		2: Angles in Circles	1: Determining Central and Inscribed Angles in Circles 2: Determining Chords in Circles 3: Determining Interior and Exterior Angles in Circles 4: Angles of an Inscribed Quadrilateral
							3: Arc Length	1: Relating Arc Length and Radius 2: Calculating Area of a Sector
	G.C.1.3	Recognize and write the radius !, center (h, !), and standard form of the equation of a circle (! − h)2 + (! − !)2 = !2 with and without graphs.	Geometry	13: Circles and Parabolas	13.1 The Coordinate Plane (965) 13.2 Bring on the Algebra (973) 13.3 Is That Point on the Circle (989)	8: Conics	1: Equation of a Circle	2: Determining the Radius and Center of a Circle
	G.C.1.4	Apply the distance and midpoint formula, where appropriate, to develop the equation of a circle in standard form.	Geometry	13: Circles and Parabolas	13.2 Bring on the Algebra (973)	8: Conics	1: Equation of a Circle	1: Deriving the Equation of a Circle

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G.RT.1 Develop and verify mathematical relationships of right triangles and trigonometric ratios to solve real-world and mathematical problems.	G.RT.1.1	Apply the distance formula and the Pythagorean Theorem and its converse to solve real-world and mathematical problems, as approximate and exact values, using algebraic and logical reasoning (include Pythagorean Triples).	Geometry	1: Tools of Geometry	1.2 Let's Move (17) 1.3 Treasure Hunt (35)	1: Tools of Geometry	2: Distances on the Coordinate Plane	1: Deriving the Distance Formula 2: Calculating Distances using the Distance Formula 3: Partitioning Segments Proportionately 4: Calculating Perimeter and Area using the Distance Formula
				4: Three Dimensional Figures	4.8 Two Dimensions Meet Three Dimensions (359)			
				6: Similarity Through Transformations	6.5 Proving the Pythagorean Theorem (489)			
	G.RT.1.2	Verify and apply properties of right triangles, including properties of 45-45-90 and 30-60-90 triangles, to solve problems using algebraic and logical reasoning.	Geometry	5: Properties of Triangles	5.4 Stamps Around the World (411) 5.5 More Stamps, Really ? (419)	5: Similarity, Right Triangles, and Trigonometry	2: Special Right Triangles	1: Introduction to Special Right Triangles 2: Calculating the Lengths of Sides of Special Right Triangles
	G.RT.1.3	Use the definition of the trigonometric functions to determine the sine, cosine, and tangent ratio of an acute angle in a right triangle. Apply the inverse trigonometric functions as ratios to find the measure of an acute angle in right triangles.	Geometry	9: Trigonometry	9.1 Three Angle Measure (657) 9.2 The Tangent Ratio (669) 9.3 The Sine Ratio (685) 9.4 The Cosine Ratio (695) 9.5 We Complement Each Other (707) 9.6 Time to Derive (717)	5: Similarity, Right Triangles, and Trigonometry	3: Trigonometric Ratios	1: Introduction to Trigonometric Ratios 2: Relating Sine and Cosine of Complementary Angles
							4: Right Triangles and Trigonometric Ratios	1: Determining Side Lengths using One Trigonometric Ratio 2: Determining Side Lengths using Two Trigonometric Ratios
	G.RT.1.4	Apply the trigonometric functions as ratios (sine, cosine, and tangent) to find side lengths in right triangles in real-world and mathematical problems.	Geometry	9: Trigonometry	9.1 Three Angle Measure (657) 9.2 The Tangent Ratio (669) 9.3 The Sine Ratio (685) 9.4 The Cosine Ratio (695) 9.5 We Complement Each Other (707) 9.6 Time to Derive (717)	5: Similarity, Right Triangles, and Trigonometry	4: Right Triangles and Trigonometric Ratios	1: Determining Side Lengths using One Trigonometric Ratio 2: Determining Side Lengths using Two Trigonometric Ratios

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