Correlation Between the College Board Standards for College Success and Glencoe's *Geometry* © 2010

Number	College Board Performance Expectation	Student Edition Lesson(s)
Standard G.1 Geometric Reasoning, Proof, and Representations		
Objective G.1.1		
G.1.1.1	Uses coordinates and algebraic representations (e.g., distances, points that divide segments in specified ratios, slope) to describe and define figures.	1-3, 3-3
G.1.1.2	Uses nets, drawings, models, and technologically created images to represent geometric objects and analyze relationships among them.	1-7, Extend 1-7
G.1.1.3	Investigates geometric representations and properties not found in Euclidean geometry, for example, relationships from geometry on a sphere or applications of planar networks.	12-7, Extend 13-6
G.1.1.4	Interprets the role of the parallel postulate as the key postulate in the formulation of Euclidean geometry, and illustrates its counterparts in other geometries (e.g., geometry on a sphere, finite geometries).	3-5, 12-7
Objective G.1.2		
G.1.2.1	Describes the structure of and relationships within an axiomatic system (undefined terms, defined terms, axioms/postulates, methods of reasoning, and theorems).	1-1, 2-1, 2-5, 2-6
G.1.2.2	Forms conjectures based on exploring geometric situations with or without technology.	2-1
G.1.2.3	Proves, directly or indirectly, that a valid mathematical statement is true. Develops a counterexample to refute an invalid statement.	2-1, 2-2, 5-4
G.1.2.4	Recognizes flaws or gaps in the reasoning supporting an argument.	Throughout the text; for example, 1-1, 2-3, 5-1, 9-4, 13-5
G.1.2.5	Formulates and investigates the validity of the converse of a conditional statement.	2-3
Objective G.1.3		
G.1.3.1	Develops and tests conjectures about angles, lines, bisectors, polygons (especially triangles and quadrilaterals), circles, and three-dimensional figures.	Throughout the text; for example, 1-4, 3-2, 4-4, 5-1, 6-1, 6-5, 10-4, 12-3
G.1.3.2	Justifies statements about angles formed by perpendicular lines and transversals of parallel lines.	3-1, 3-2, Explore 3-2, 3-5, 3-6, 4-2
G.1.3.3	Develops the triangle angle-sum and angle-measure theorems for polygons, and the triangle- and angle-inequality theorems.	4-2, 5-3, 5-4, Explore 5-5, 5-5, 5-6, 6-1, 6-2
G.1.3.4	Justifies and applies statements about angles formed by chords, tangents, and secants in circles and the measures of their intercepted arcs.	10-2, 10-3, 10-4, 10-5, 10-6, 10-7
G.1.3.5	Organizes and presents direct proofs and indirect proofs using two-column, paragraph, and flow-chart formats.	2-5, 2-6, 4-2, 5-4
Standard G.2 Similarity and Transformations		

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Objective G.2.1		
G.2.1.1	Represents translations, line reflections, rotations, and origin-centered dilations of objects in the coordinate plane by using sketches, coordinates, and function notation, and explains the effects of these transformations.	4-7, 7-6, 9-1, 9-2, 9-3, 9-4, 9-6
G.2.1.2	Recognizes and identifies corresponding parts of congruent and similar figures after transformation.	4-7, 7-6, 9-1, 9-2, 9-3, 9-4, 9-6
Objective G.2.2		
G.2.2.1	Analyzes figures in terms of their symmetries using the concepts of reflection, rotation, and translation and combinations of these.	9-5
G.2.2.2	Compares and contrasts equality, congruence, and similarity.	7-2, 9-5, 9-6
G.2.2.3	Identifies and differentiates among sufficient conditions for congruence of triangles (SSS, SAS, ASA, AAS, and HL), and applies them.	Explore 2-5, 4-4, 4-5, Extend 4-5
G.2.2.4	Uses coordinate geometry and rigid transformations (reflections, translations, and rotations) to establish congruence of figures.	4-7, 4-8, 9-1, 9-2, 9-3
Objective G.2.3		
G.2.3.1	Identifies the similarity conditions SAS, SSS, and AA as sufficient conditions for establishing similarity of triangles, and applies them, noting that congruence is a special case of similarity.	Explore 2-5, 7-3
G.2.3.2	Uses similarity to calculate the measures of corresponding parts of similar figures, and applies similarity in a variety of problem-solving contexts within mathematics and other disciplines.	7-3, 7-4, 7-5, 7-6, 7-7
G.2.3.3	Creates a representation of a figure similar to a specified figure given their similarity ratio.	7-7
G.2.3.4	Uses similar triangles to demonstrate that the rate of change associated with any pair of points on a line is the same.	7-3
G.2.3.5	Uses origin-centered dilations to describe and investigate similarities.	7-6, 9-6
Standard G.3 Direct and Indirect Measurements		
Objective G.3.1		
G.3.1.1.	Justifies the area formulas for quadrilaterals and regular polygons.	11-1, Explore 11-2, 11-2, Explore 11-4, 11-4
G.3.1.2	Applies the (volume) = (area of the base) × (height) principle in linking area and volume formulas for prisms and cylinders.	1-7, 12-4
G.3.1.3	Links the surface area of prisms and cylinders to the sum of the areas of their bases and lateral surfaces using planar nets to illustrate and sum the relevant measures.	1-7, Extend 1-7, 12-1, 12-2
G.3.1.4	Identifies and finds the measures of angles formed by segments in three-dimensional figures, extending right-triangle and isosceles/equilateral-triangle relationships to study the planar faces of three-dimensional objects.	12-2, 12-3
G.3.1.5	Applies formulas and solves problems involving area, perimeter, volume, and surface area of pyramids, cones, spheres, and composite figures.	1-6, Extend 1-6, 1-7, 8-4, 11-1, Explore 11-2, 11-2, 11-3, 11-4, Extend 11-4, 11-5, 12-2, 12-3, 12-4, 12-5, 12-6

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G.3.1.6	Determines arc lengths of circles and areas of sectors of circles using proportions.	10-2, 11-3
Objective G.3.2		
G.3.2.1	Proves the Pythagorean theorem and its converse and applies them in two- and three-dimensional settings.	8-2, 8-4, 12-2, 12-3
G.3.2.2	Develops and applies the distance formula to determine the distance between points in the coordinate plane.	1-3, 4-7, Extend 8-2
G.3.2.3	Develops and applies the properties of 30°-60°-90° and 45°-45°-90° triangles; develops and applies proportional relationships involving the altitude drawn to the hypotenuse of a right triangle.	8-1, 8-3
G.3.2.4	Applies the sine, cosine, and tangent trigonometric ratios to determine lengths and angle measures in right triangles.	Explore 8-4, 8-4, 8-5, 8-6
G.3.2.5	Applies, singly and in combination, the Pythagorean theorem, properties of proportionality, trigonometric ratios, and similarity in solving mathematical and real-world problems.	8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7
Standard G.4 Two-Stage Experiments, Conditional Probability, and Independence		
Objective G.4.1		
G.4.1.1	Uses lists, tables, and tree diagrams to represent all possible outcomes in the sample space for a given two-stage experiment.	13-1
G.4.1.2	Employs systematic counting approaches, such as the multiplication rule for counting, to determine the number of possible outcomes.	13-1, 13-2
G.4.1.3	Distinguishes between independent and dependent compound events, and explains the idea of conditional probability.	13-5
G.4.1.4	Designs and uses trees, tables, area models, and other representational methods to calculate the probability of compound events in two-stage experiments when the events are independent and when they are not independent.	13-5, 13-6
G.4.1.5	Describes and applies the multiplication rule for probability for computing probabilities for independent and for dependent compound events.	13-5, 13-6
Objective G.4.2		
G.4.2.1	Describes a simulation by identifying the components and assumptions in a problem, selecting a device to generate chance outcomes, defining a trial, and specifying the number of trials; conducts a simulation.	13-4
G.4.2.2	Summarizes data from a simulation using appropriate graphical and numerical summaries, develops an estimate for the probability of an event associated with a real-world probabilistic situation, and discusses the effect of the number of trials on the estimated probability of the event.	13-4
G.4.2.3	Recognizes that simulation results are likely to differ from one run of the simulation to the next; observes that the results of the simulation tend to converge as the number of trials increases.	13-4