

Ohio Academic Content Standards, Grade 9 Indicators, Correlated to *Glencoe Algebra 1*

Lessons in which the standards are a primary focus are indicated in **bold**.

Academic Standards		Student Edition Lesson(s)
Standard 1 Number, Number Sense and Operations		
Number and Number Systems		
N1	Identify and justify whether properties (closure, identity, inverse, commutative and associative) hold for a given set and operations; e.g., even integers and multiplication.	1-4, 1-6
N2	Compare, order and determine equivalent forms for rational and irrational numbers.	2-1, 2-7
Meaning of Operations		
N3	Explain the effects of operations such as multiplication or division, and of computing powers and roots on the magnitude of quantities.	1-1, 1-2, 2-3, 2-4, 2-7, 11-1
Computation and Estimation		
N4	Demonstrate fluency in computations using real numbers.	Addressed throughout.
N5	Estimate the solutions for problem situations involving square and cube roots.	2-7, 11-1
Standard 2 Measurement		
Measurement Units		
M1	Convert rates within the same measurement system; e.g., miles per hour to feet per second; kilometers per hour to meters per second.	12-3, 12-4
Use Measurement Techniques and Tools		
M2	Use unit analysis to check computations involving measurement.	3-8
M3	Use the ratio of lengths in similar two-dimensional figures or three-dimensional objects to calculate the ratio of their areas or volumes respectively.	11-6; <i>Glencoe Pre-Algebra</i> 11-6P, 11-6
M4	Use scale drawings and right triangle trigonometry to solve problems that include unknown distances and angle measures.	3-6, 11-7
M5	Solve problems involving unit conversion for situations involving distances, areas, volumes and rates within the same measurement system.	<i>Glencoe Pre-Algebra</i> PS13, PS14
Standard 3 Geometry and Spatial Sense		
Characteristics and Properties		
G1	Define the basic trigonometric ratios in right triangles: sine, cosine and tangent.	11-7
G2	Apply proportions and right triangle trigonometric ratios to solve problems involving missing lengths and angle measures in similar figures.	11-6, 11-7P, 11-7
Visualization and Geometric Models		
G3	Analyze two-dimensional figures in a coordinate plane; e.g., use slope and distance formulas to show that a quadrilateral is a parallelogram.	4-2, 5-6, 11-5

Academic Standards		Student Edition Lesson(s)
Standard 4 Patterns, Functions and Algebra		
Use Patterns, Relations, and Functions		
P1	Define function with ordered pairs in which each domain element is assigned exactly one range element.	4-3, 4-6
P2	Generalize patterns using functions or relationships (linear, quadratic and exponential), and freely translate among tabular, graphical and symbolic representations.	4-6, 4-8, 10-1, 10-5
P3	Describe problem situations (linear, quadratic and exponential) by using tabular, graphical and symbolic representations.	4-8, 10-1, 10-5
P4	Demonstrate the relationship among zeros of a function, roots of equations, and solutions of equations graphically and in words.	4-5, 10-2, 10-4
P5	Describe and compare characteristics of the following families of functions: linear, quadratic and exponential functions; e.g., general shape, number of roots, domain, range, rate of change, maximum or minimum.	5-2, 5-3F, 10-1F, 10-5
Use Algebraic Representations		
P6	Write and use equivalent forms of equations and inequalities in problem situations; e.g., changing a linear equation to the slope intercept form.	5-2, 5-3, 5-4, 5-5, 6-1, 6-2, 6-3, 6-4
P7	Use formulas to solve problems involving exponential growth and decay.	10-6
P8	Find linear equations that represent lines that pass through a given set of ordered pairs, and find linear equations that represent lines parallel or perpendicular to a given line through a specific point.	5-4, 5-6
P9	Solve and interpret the meaning of 2 by 2 systems of linear equations graphically, by substitution and by elimination, with and without technology.	7-1P, 7-1, 7-1F, 7-2, 7-3, 7-4
P10	Solve quadratic equations with real roots by factoring, graphing, using the quadratic formula and with technology.	10-2, 10-3, 10-3F, 10-4
P11	Add, subtract, multiply and divide monomials and polynomials (division of polynomials by monomials only).	8-1, 8-5P, 8-5, 8-6, 8-7P, 8-7, RM12, 12-3
P12	Simplify rational expressions by eliminating common factors and applying properties of integer exponents.	8-2, 12-2, 12-3, 12-4, RM12, 12-5
Analyze Change		
P13	Model and solve problems involving direct and inverse variation using proportional reasoning.	5-2, 12-1
P14	Describe the relationship between slope and the graph of a direct variation and inverse variation.	5-2, 12-1
P15	Describe how a change in the value of a constant in a linear or quadratic equation affects the related graphs.	10-1F, 5-2, 5-3F
Standard 5 Data Analysis and Probability		
Data Collection		
D1	Classify data as univariate (single variable) or bivariate (two variables) and as quantitative (measurement) or qualitative (categorical) data.	1-9, 2-5, 5-7, 13-3, 13-4, 13-5
D2	Create a scatterplot for a set of bivariate data, sketch the line of best fit, and interpret the slope of the line of best fit.	5-7

Academic Standards		Student Edition Lesson(s)
Statistical Methods		
D3	Analyze and interpret frequency distributions based on spread, symmetry, skewness, clusters and outliers.	2-5, 13-3, 13-4 , 13-5
D4	Describe and compare various types of studies (survey, observation, experiment), and identify possible misuses of statistical data.	13-1
D5	Describe characteristics and limitations of sampling methods, and analyze the effects of random versus biased sampling; e.g., determine and justify whether the sample is likely to be representative of the population.	13-1
D6	Make inferences about relationships in bivariate data, and recognize the difference between evidence of relationship (correlation) and causation.	5-7
Probability		
D7	Use counting techniques and the Fundamental Counting principle to determine the total number of possible outcomes for mathematical situations.	14-1
D8	Describe, create and analyze a sample space and use it to calculate probability.	14-2, 14-3
D9	Identify situations involving independent and dependent events, and explain differences between, and common misconceptions about, probabilities associated with those events.	14-3
D10	Use theoretical and experimental probability, including simulations or random numbers, to estimate probabilities and to solve problems dealing with uncertainty; e.g., compound events, independent events, simple dependent events.	14-4, 14-5

F = Follow-Up Lesson, P = Preview Lesson, PS = Prerequisite Skill, RM = Reading Math