

GLENCOE CORRELATION
ALGEBRA 2 © 2005
ARIZONA
Academic Content Standards
High School

CONTENT STANDARDS	PAGE REFERENCES
Strand 1: Number Sense and Operations	
Concept 1: Number Sense Understand and apply numbers, ways of representing numbers, the relationships among numbers and different number systems.	
PO 1. Classify real numbers as members of one or more subsets: natural, whole, integers, rational, or irrational numbers.	SE: 11-18, 48, 828 <i>Getting Ready for the Next Lesson 244</i> <i>Getting Started 221</i> TWE: ICE 12
PO 2. Identify properties of the real number system: commutative, associative, distributive, identity, inverse, and closure.	SE: 11-18, 20-27, 48, 828 TWE: ICE 12-14, 21-22
PO 3. Distinguish between finite and infinite sets of numbers.	SE: 11
Concept 2: Numerical Operations Understand and apply numerical operations and their relationship to one another.	
PO 1. Select the grade level appropriate operation to solve word problems.	SE: 23, 36, 131, 161-162, 247, 289-290, 556 TWE: ICE 23, 131, 247
PO 2. Solve word problems using grade level appropriate operations and numbers.	SE: 64, 97, 203, 247, 386, 640, 735, 773 TWE: ICE 64, 386
PO 3. Simplify numerical expressions including signed numbers and absolute values.	SE: 28-32, 49, 829 <i>Getting Started 55</i> TWE: ICE 29
PO 4. Apply subscripts to represent ordinal position.	SE: 579-581, 583-584, 586, 588-591, 595-597, 600-602 TWE: ICE 579
PO 5. Use grade level appropriate mathematical terminology.	SE: <i>Check for Understanding 30, 125, 192, 254, 488, 602, 722, 802</i>
PO 6. Compute using scientific notation.	SE: 36-38, 247, 296-298, 331-334 TWE: ICE 36, 247, 296, 331
PO 7. Simplify numerical expressions using the order of operations.	SE: 6-10, 47-48, 828 <i>Getting Started 221</i> TWE: ICE 7
Concept 3: Estimation Use estimation strategies reasonably and fluently.	
PO 1. Solve grade level appropriate problems using estimation.	SE: 225, 296, 726, 727, 729, 735, 748 TWE: ICE 225, 296, 729
PO 2. Determine if a solution to a problem is reasonable.	SE: 36-38, 129-134, 140-141, 289-290, 296, 331 TWE: ICE 36, 130-131, 296, 331
PO 3. Determine rational approximations of irrational numbers.	SE: 247-248, 554 TWE: ICE 247

CONTENT STANDARDS	PAGE REFERENCES
Strand 2: Data Analysis, Probability, and Discrete Mathematics	
Concept 1: Data Analysis (Statistics)	
Understand and apply data collection, organization and representation to analyze and sort data.	
PO 1. Formulate questions to collect data in contextual situations.	SE: 682-685, 692, 856 TWE: ICE 683
PO 2. Organize collected data into an appropriate graphical representation.	SE: 81-86, 103, 831 <i>Prerequisite Skills</i> 825, 826-827 TWE: ICE 82
PO 3. Display data as lists, tables, matrices, and plots.	SE: <i>Graphing Calculator Investigation</i> 87-88, 163, 205, 208 <i>Spreadsheet Investigation</i> 159
PO 4. Construct equivalent displays of the same data.	This objective can be referenced in Glencoe's <i>Algebra 1</i> .
PO 5. Identify graphic misrepresentations and distortions of sets of data.	This objective can be referenced in Glencoe's <i>Algebra 1</i> .
PO 6. Identify which of the measures of central tendency is most appropriate in a given situation.	SE: 664-669, 690, 855 <i>Prerequisite Skills</i> 822-823 TWE: ICE 665
PO 7. Make reasonable predictions based upon linear patterns in data sets or scatter plots.	SE: 81-86, 103, 831 <i>Graphing Calculator Investigation</i> 87-88 TWE: ICE 83
PO 8. Make reasonable predictions for a set of data, based on patterns.	SE: 81-86, 103, 831 <i>Graphing Calculator Investigation</i> 87-88, 300 TWE: ICE 83
PO 9. Draw inferences from charts, tables, graphs, plots, or data sets.	SE: 81-86, 103, 671-675, 831 <i>Graphing Calculator Investigation</i> 87-88, 300 TWE: ICE 83
PO 10. Apply the concepts of mean, median, mode, range, and quartiles to summarize data sets.	SE: 664-669, 690, 855 <i>Prerequisite Skills</i> 822-823 TWE: ICE 665
PO 11. Evaluate the reasonableness of conclusions drawn from data analysis.	SE: 81-86, 103, 682-685, 692, 831, 855 <i>Algebra Activity</i> 686 <i>Graphing Calculator Investigation</i> 87-88 TWE: ICE 83
PO 12. Recognize and explain the impact of interpreting data (making inferences or drawing conclusions) from a biased sample.	SE: 682-685, 692, 855 TWE: ICE 683
PO 13. Draw a line of best fit for a scatter plot.	SE: 81-86, 103, 831 <i>Graphing Calculator Investigation</i> 87-88, 300 TWE: ICE 82-83
PO 14. Determine whether a displayed data has positive, negative, or no correlation.	SE: <i>Graphing Calculator Investigation</i> 87
PO 15. Identify a normal distribution.	SE: 671-675, 691, 856 <i>Maintain Your Skills</i> 680, 685 TWE: ICE 672
PO 16. Identify differences between sampling and census.	SE: 682-685, 692, 855 TWE: ICE 683

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PO 17. Identify differences between biased and unbiased samples.	SE: 682-685, 692, 855 TWE: ICE 683
Concept 2: Probability Understand and apply the basic concepts of probability.	
PO 1. Find the probability that a specific event will occur, with or without replacement.	SE: 644-649, 651-657, 658-662 <i>Getting Started</i> 631 TWE: ICE 645-646, 652-654, 659-660 OEA 650
PO 2. Determine simple probabilities related to geometric figures.	SE: 644-649, 651-657, 658-662 <i>Getting Started</i> 631 TWE: ICE 645-646, 652-654, 659-660 OEA 650
PO 3. Predict the outcome of a grade level appropriate probability experiment.	SE: 676-680, 691-692, 856 <i>Algebra Activity</i> 681 TWE: ICE 677
PO 4. Record the data from performing a grade level appropriate probability experiment.	SE: 676-680, 691-692, 856 <i>Algebra Activity</i> 681
PO 5. Compare the outcome of an experiment to predictions made prior to performing the experiment.	SE: 676-680, 691-692, 856 <i>Algebra Activity</i> 681
PO 6. Distinguish between independent and dependent events.	SE: 632-636, 687, 854 TWE: ICE 633
PO 7. Compare the results of two repetitions of the same grade level appropriate probability experiment.	SE: 676-680, 691-692, 856 <i>Algebra Activity</i> 681
Concept 3: Discrete Mathematics – Systematic Listing and Counting Understand and demonstrate the systematic listing and counting of possible outcomes.	
PO 1. Determine the number of possible outcomes for a contextual event using a chart, a tree diagram, or the counting principle.	SE: 632-636, 644-649 TWE: ICE 633-634, 645-646
PO 2. Determine when to use combinations versus permutations in counting objects.	SE: 638-642, 688, 854 <i>Maintain Your Skills</i> 650 TWE: ICE 639
PO 3. Use combinations or permutations to solve contextual problems.	SE: 638-642, 688, 854 <i>Maintain Your Skills</i> 650 TWE: ICE 639
Concept 4: Vertex-Edge Graphs Understand and apply vertex-edge graphs.	
Strand 3: Patterns, Algebra, and Functions	
Concept 1: Patterns Identify patterns and apply pattern recognition to reason mathematically.	
PO 1. Communicate a grade level appropriate iterative or recursive pattern, using symbols or numbers.	SE: 578-582, 588-592, 606-610, 622, 623-624 <i>Algebra Activity</i> 611 TWE: ICE 579
PO 2. Find the n^{th} term of an iterative or recursive pattern.	SE: 578-582, 588-592, 606-610, 622, 623-624 <i>Algebra Activity</i> 611 TWE: ICE 607, 608

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PO 3. Evaluate problems using basic recursion formulas.	SE: 606-610, 625, 853 <i>Maintain Your Skills</i> 617 TWE: ICE 607, 608
Concept 2: Functions and Relationships Describe and model functions and their relationships.	
PO 1. Determine if a relationship is a function, given a graph, table, or set of ordered pairs.	SE: 57-62, 100-101, 830 <i>Maintain Your Skills</i> 67 TWE: ICE 58-59
PO 2. Describe a contextual situation that is depicted by a given graph.	This objective can be referenced in Glencoe's <i>Algebra 1</i> .
PO 3. Identify a graph that models a given real-world situation.	SE: 89-94, 286-293, 294-299, 353-358, 739-745 TWE: ICE 90, 742
PO 4. Sketch a graph that models a given contextual situation.	SE: 89-94, 286-293, 294-299, 353-358, 739-745 TWE: ICE 90, 742
PO 5. Determine domain and range for a function.	SE: 56-62, 92-94, 395-399, 523-530 TWE: ICE 57-59, 92, 396, 524
PO 6. Determine the solution to a contextual maximum/minimum problem, given the graphical representation.	SE: 129-134, 147, 288-293, 336-337, 354-358, 401 TWE: ICE 289
PO 7. Express the relationship between two variables using tables/matrices, equations, or graphs.	SE: 56-62, 63-67, 154-158, 160-166, 167-173, 175-181 TWE: ICE 57-59, 155, 161, 169
PO 8. Interpret the relationship between data suggested by tables/matrices, equations, or graphs.	SE: 56-62, 63-67, 154-158, 160-166, 167-173, 175-181 TWE: ICE 57-59, 155, 161, 169
PO 9. Determine from two linear equations whether the lines are parallel, perpendicular, coincident, or intersecting but not perpendicular.	SE: 70-74, 101-102, 110-115 TWE: ICE 111-112
Concept 3: Algebraic Representations Represent and analyze mathematical situations and structures using algebraic representations.	
PO 1. Evaluate algebraic expressions, including absolute value and square roots.	SE: 28-32, 245-249, 250-255 <i>Getting Started</i> 55, 285, 699 <i>Prerequisite Skills</i> 820-821 TWE: ICE 29
PO 2. Simplify algebraic expressions.	SE: 6-10 <i>Getting Started</i> 55, 109, 221, 577, 631 TWE: ICE 7
PO 3. Multiply and divide monomial expressions with integral exponents.	SE: 222-228, 276-277, 836 <i>Getting Started</i> 521 TWE: ICE 223-225
PO 4. Translate a written expression or sentence into a mathematical expression or sentence.	SE: 20-27, 36-38, 43-46, 111-114, 131-134 TWE: ICE 21, 23, 36, 43, 111
PO 5. Translate a sentence written in context into an algebraic equation involving multiple operations.	SE: 20-27, 36-38, 43-46, 111-114, 131-134 TWE: ICE 21, 23, 36, 43, 111
PO 6. Write a linear equation for a table of values.	SE: 56-62, 79, 81-86, 103, 830 <i>Graphing Calculator Investigation</i> 87-88 TWE: ICE 58

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PO 7. Write a linear algebraic sentence that represents a data set that models a contextual situation.	SE: 89-94, 286-293, 294-299, 353-358, 739-745 TWE: ICE 90, 742
PO 8. Solve linear (first degree) equations in one variable (may include absolute value).	SE: 20-27, 28-32, 48-49, 828, 829 <i>Getting Started</i> 153, 471 TWE: ICE 22-23, 29, 34-36, 41-43
PO 9. Solve linear inequalities in one variable.	SE: 33-39, 40-46, 49-50, 829 TWE: ICE 22-23, 29, 34-36, 41-43
PO 10. Write an equation of the line given: two points on the line, the slope and a point on the line, or the graph of the line.	SE: 76-80, 81-86, 102, 103, 831 TWE: ICE 76, 83
PO 11. Solve an algebraic proportion.	SE: 492-498, 703-708, 726-732 <i>Getting Ready for the Next Lesson</i> 181, 490 <i>Getting Started</i> 471 <i>Prerequisite Skills</i> 817-819 TWE: ICE 493-494
PO 12. Solve systems of linear equations in two variables (integral coefficients and rational solutions).	SE: 110-115, 116-122, 145, 146, 189-194, 202-207, 213, 214 <i>Getting Started</i> 153 TWE: ICE 111-112, 116-119, 190, 203-204 OEA 207
PO 13. Add, subtract and perform scalar multiplication with matrices.	SE: 160-166, 210, 834 TWE: ICE 161, 162
PO 14. Calculate powers and roots of real numbers, both rational and irrational, using technology when appropriate.	SE: 6-10, 224-228, 245-249, 250-255, 257-262, 313-319, 523-530 <i>Getting Started</i> 5, 285, 631 TWE: ICE 7, 246
PO 15. Simplify square roots and cube roots with monomial radicands (including those with variables) that are perfect squares or perfect cubes.	SE: 245-249, 250-255 <i>Getting Started</i> 285, 699 <i>Prerequisite Skills</i> 820-821 TWE: ICE 246-247, 251-253
PO 16. Solve square root radical equations involving only one radical.	SE: 263-267, 280, 839 <i>Graphing Calculator Investigation</i> 268-269 TWE: ICE 264
PO 17. Solve quadratic equations.	SE: 294-299, 301-305, 306-312, 313-319, 337, 338, 840 <i>Getting Started</i> 411, 761 TWE: ICE 295-296, 302, 307-309, 314-316
PO 18. Identify the sine, cosine, and tangent ratios of the acute angles of a right triangle.	SE: 701-708, 752-753, 857 <i>Maintain Your Skills</i> 714 TWE: ICE 702-705
Concept 4: Analysis of Change	
Analyze change in a variable over time and in various contexts.	
PO 1. Determine slope, x-, and y-intercepts of a linear equation.	SE: 65-67, 70-74, 77-80, 101-102, 830 TWE: ICE 65, 70-71, 77
PO 2. Solve formulas for specified variables.	SE: 22-27, 48-49, 828 <i>Getting Started</i> 109 TWE: ICE 22

CONTENT STANDARDS	PAGE REFERENCES
Strand 4: Geometry and Measurement	
Concept 1: Geometric Properties	
Analyze the attributes and properties of two- and three- dimensional shapes and develop mathematical arguments about their relationships.	
PO 1. Identify the attributes of special triangles. (isosceles, equilateral, right)	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 2. Identify the hierarchy of quadrilaterals.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 3. Make a net to represent a three-dimensional object.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 4. Make a three-dimensional model from a net.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 5. Draw 2-dimensional and 3-dimensional figures with appropriate labels.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 6. Solve problems related to complementary, supplementary, or congruent angle concepts.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 7. Solve problems by applying the relationship between circles, angles, and intercepted arcs.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 8. Solve problems by applying the relationship between radii, diameters, chords, tangents or secants.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 9. Solve problems using the triangle inequality property.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 10. Solve problems using special case right triangles.	SE: 703-708 <i>Spreadsheet Investigation 700</i> TWE: ICE 704-705
PO 11. Determine when triangles are congruent by applying SSS, ASA, AAS or SAS.	SE: <i>Prerequisite Skills</i> 817-819
PO 12. Determine when triangles are similar by applying SAS, SSS, or AA similarity postulates.	SE: <i>Prerequisite Skills</i> 817-819
PO 13. Construct a triangle congruent to a given triangle.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 14. Solve contextual situations using angle and side length relationships.	SE: 701-708, 757 #24, 874 TWE: ICE 704-705
Concept 2: Transformation of Shapes	
Apply spatial reasoning to create transformations and use symmetry to analyze mathematical situations.	
PO 1. Sketch the planar figure that is the result of two or more transformations.	SE: 175-181, 211-212, 835 TWE: ICE 176
PO 2. Identify the properties of the planar figure that is the result of two or more transformations.	SE: 175-181, 211-212, 835 TWE: ICE 176-177
PO 3. Determine the new coordinates of a point when a single transformation is performed on a planar geometric figure.	SE: 175-181, 211-212, 835 <i>Getting Started</i> 411 TWE: ICE 176-178
PO 4. Determine whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation, or dilation.	SE: 175-181, 211-212, 835 TWE: ICE 176-177
PO 5. Classify transformations based on whether they produce congruent or similar figures.	SE: 175-181, 211-212, 835 TWE: ICE 176-177

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PO 6. Determine the effects of a single transformation on linear or area measurements of a planar geometric figure.	SE: 175-181, 211-212, 835 TWE: ICE 176-177
Concept 3: Coordinate Geometry Specify and describe spatial relationships using coordinate geometry and other representational systems.	
PO 1. Graph a quadratic equation with lead coefficient equal to one.	SE: 287-291, 294-295, 297-298, 336-337 TWE: ICE 287
PO 2. Graph a linear equation in two variables.	SE: 63-67, 70-74, 110-115 <i>Getting Started</i> 109, 285 TWE: ICE 65, 70-71, 111-112
PO 3. Graph a linear inequality in two variables.	SE: 96-99, 123-127, 129-134 <i>Getting Started</i> 411 <i>Graphing Calculator Investigation</i> 128 TWE: ICE 96-97, 123-125, 130-131 OEA 127
PO 4. Determine the solution to a system of equations in two variables from a given graph.	SE: 110-115, 145, 832 <i>Maintain Your Skills</i> 122 TWE: ICE 111-112
PO 5. Determine the midpoint between two points in a coordinate system.	SE: 412, 414, 461-462 <i>Algebra Activity</i> 417-418 TWE: ICE 413
PO 6. Determine changes in the graph of a linear function when constants and coefficients in its equation are varied.	SE: 70-74, 77-80, 110-115 TWE: CC 112 ICE 71, 111-112
PO 7. Determine the distance between two points in the coordinate system.	SE: 412-416 <i>Algebra Activity</i> 417-418 TWE: H 412 ICE 413 T 417
Concept 4: Measurement - Units of Measure - Geometric Objects Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.	
PO 1. Calculate the area of geometric shapes composed of two or more geometric figures.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 2. Calculate the volumes of three-dimensional geometric figures.	SE: 367, 378, 379, 380 #11, 615 #31, 862 #1-#2
PO 3. Calculate the surface areas of three-dimensional geometric figures.	SE: 18 #82, 22, 27 #83, 266 #12, 862 #1-#2
PO 4. Compare perimeter, area, or volume of figures when dimensions are changed.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 5. Find the length of a circular arc.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 6. Find the area of a sector of a circle.	SE: 713 #56-#57
PO 7. Solve for missing measures in a pyramid. (i.e., slant height, height)	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 8. Find the sum of the interior and exterior angles of a polygon.	This objective can be referenced in Glencoe's <i>Geometry</i> .
PO 9. Solve scale factor problems using ratios and proportions.	This objective can be referenced in Glencoe's <i>Geometry</i> .

CONTENT STANDARDS	PAGE REFERENCES
PO 10. Solve applied problems using similar triangles.	SE: 817-819
Strand 5: Structure and Logic	
Concept 1: Algorithms and Algorithmic Thinking	
Use reasoning to solve mathematical problems in contextual situations.	
PO 1. Determine whether a given procedure for simplifying an expression is valid.	SE: <i>Check for Understanding</i> 171, 242, 476 <i>Critical Thinking</i> 17, 31, 227, 249, 255, 616 <i>Find the Error</i> 226
PO 2. Determine whether a given procedure for solving an equation is valid.	SE: <i>Find the Error</i> 24, 43, 119, 205, 303, 310, 325, 509, 535, 557
PO 3. Determine whether a given procedure for solving a linear inequality is valid.	SE: <i>Find the Error</i> 43 <i>Graphing Calculator Exploration</i> 36
PO 4. Select an algorithm that explains a particular mathematical process.	SE: <i>Check for Understanding</i> 30, 163, 247, 332, 414 <i>Find the Error</i> 303 TWE: OEA 86
PO 5. Determine the purpose of a simple mathematical algorithm.	SE: 28-32, 33-39, 160-166, 167-173, 182-188, 233-238, 250-255, 257-262, 365-370, 479-484
PO 6. Determine whether given simple mathematical algorithms are equivalent.	SE: 116, 230, 233-238 TWE: TT 234
Concept 2: Logic, Reasoning, Arguments, and Mathematical Proof	
Evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions and recognize their applications.	
PO 1. Draw a simple valid conclusion from a given <i>if...then</i> statement and a minor premise.	SE: <i>Algebra Activity</i> 19, 83, 240, 522, 607, 716
PO 2. List related <i>if... then</i> statements in logical order.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 3. Write an appropriate conjecture given a certain set of circumstances.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 4. Analyze assertions related to a contextual situation by using principles of logic.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 5. Identify a valid conjecture using inductive reasoning.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 6. Distinguish valid arguments from invalid arguments.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 7. Create inductive and deductive arguments concerning geometric ideas and relationships, such as congruence, similarity, and the Pythagorean relationship.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 8. Critique inductive and deductive arguments concerning geometric ideas and relationships, such as congruence, similarity, and the Pythagorean relationship.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 9. Identify a counterexample for a given conjecture.	SE: 619-621 <i>Check for Understanding</i> 14, 92, 185, 242, 666, 706 <i>Critical Thinking</i> 376, 592 TWE: ICE 619

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PO 10. Construct a counterexample to show that a given conjecture is false.	SE: 619-621 <i>Check for Understanding</i> 14, 92, 185, 242, 666, 706 <i>Critical Thinking</i> 376, 592 TWE: ICE 619
PO 11. State the inverse, converse, or contrapositive of a given statement.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 12. Determine if the inverse, converse, or contrapositive of a given statement is true or false.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 13. Construct a simple formal or informal deductive proof.	This objective can be referenced in Glencoe's <i>Algebra 1</i> and <i>Geometry</i> .
PO 14. Verify characteristics of a given geometric figure using coordinate formulas such as distance, mid-point, and slope to confirm parallelism, perpendicularity, and congruency.	SE: 77-78, 412-416, 419, 426-427, 433-441 <i>Algebra Activity</i> 417-418 TWE: ICE 77, 413

Codes Used for TWE Pages

H	How
ICE	In-Class Example
OEA	Open-Ended Assessment
T	Teach
TT	Teaching Tip