

GLENCOE CORRELATION

ALGEBRA 1

ILLINOIS

Learning Standards for Mathematics

Early High School

LEARNING STANDARDS	PAGE REFERENCES
STATE GOAL 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions.	
A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.	
6.A.4 Identify and apply the associative, commutative, distributive and identity properties of real numbers, including special numbers such as pi and square roots.	SE: 21-25, 26-31, 32-35, 150-151, 427, 439, 444-445, 452-457, 481-482, 593-595 TWE: F 21, 26, 32 ICE 453 OEA 597
B. Investigate, represent, and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms, and relationships.	
6.B.4 Select and use appropriate arithmetic operations in practical situations including calculating wages after taxes, developing a budget and balancing a checkbook.	SE: 14 #30-31, 14 #41-43, 24 #30-36, 30 #37-38, 157-159, 161 #3-4, 336 #41, 385 #34-36, 429 #56-59, 442 #36-40 TWE: F 155 ICE 17 #4, 167 #3 OEA 177
C. Compute and estimate using mental mathematics, paper-and-pencil methods, calculators, and computers.	
6.C.4 Determine whether exact values or approximations are appropriate (e.g., bid a job, determine gas mileage for a trip).	SE: 17-18 Ex#4, 50-51 Ex#1, 64 #3, 105 Ex#4, 106 Ex#6, 194 Ex#4b, 535 Ex#4-5, 537 #41-42, 662 #12, 685 TWE: ICE 51, 535
D. Solve problems using comparison of quantities, ratios, proportions, and percents.	
6.D.4 Solve problems involving recipes or mixtures, financial calculations and geometric similarity using ratios, proportions and percents.	SE: 155-158, 159 #37, 171-173, 175 #23-25, 616-618, 619 #10, 684-685 <i>Prerequisite Skills</i> 802-803 <i>Reading Mathematics</i> 165 <i>Spreadsheet Investigation</i> 178 TWE: F 155, 616 ICE 157, 618 OEA 177

LEARNING STANDARDS	PAGE REFERENCES
STATE GOAL 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.	
A. Measure and compare quantities using appropriate units, instruments, and methods.	
7.A.4a Apply units and scales to describe and compare numerical data and physical objects.	SE: 50-52, 53 #4-9, 157 Ex#5, 159 #33-34, 425, 529 #44-46, 722-724, 727 #14-15, 817 #10-12 <i>Algebra Activity</i> 416 <i>Graphing Calculator Investigation</i> 729-731 TWE: F 425 ICE 52, 157
7.A.4b Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.	SE: 108 #50, 166, 171-177, 336 #43-44, 412-414, 623-629, 646 #34-36, 670 #36-38 <i>Algebra Activity</i> 416, 626
B. Estimate measurements and determine acceptable levels of accuracy.	
7.B.4 Estimate and measure the magnitude and directions of physical quantities (e.g., velocity, force, slope) using rulers, protractors and other scientific instruments including timers, calculators and computers.	SE: 256, 260 #35-36, 303 #18-23, 530 #51, 535, 537 #41-42 <i>Algebra Activity</i> 49, 271, 293, 626 TWE: DI 260 ICE 535 #5
C. Select and use appropriate technology, instruments, and formulas to solve problems, interpret results, and communicate findings.	
7.C.4a Make indirect measurements, including heights and distances, using proportions (e.g., finding the height of a tower by its shadow).	SE: 157 Ex#5, 616-618, 619 #10, 621 #55, 623-625, 629 #61-62, 630 #63-64, 644 Ex#5, 646 #34-37 <i>Algebra Activity</i> 626 TWE: ICE 618, 626
7.C.4b Interpret scale drawings and models using maps and blueprints.	SE: 157 Ex#5, 159 #33-34, 169 #41, 194 Ex#4b, 195 #39-43, 201 #9-10, 261 #57, 435 #55-56 <i>Algebra Activity</i> 416 TWE: ICE 157, 194 OEA 196
7.C.4c Convert within and between measurement systems and monetary systems using technology where appropriate.	SE: 153 #45, 213 Ex#4, 215 #40-41, 220 Ex#3, 251 #29, 425-427, 428 #26-29, 429 #56, 685 Ex#2, 688 #41 TWE: ICE 427, 661
STATE GOAL 8: Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.	
A. Describe numerical relationships using variables and patterns.	
8.A.4a Use algebraic methods to convert repeating decimals to fractions.	SE: <i>Prerequisite Skills</i> 804
8.A.4b Represent mathematical patterns and describe their properties using variables and mathematical symbols.	SE: 7, 269 #59-60, 410-415, 417-423, 458-462, 489-493, 495-499 <i>Graphing Calculator Investigation</i> 265, 531-532

LEARNING STANDARDS	PAGE REFERENCES
B. Interpret and describe numerical relationships using tables, graphs, and symbols.	
8.B.4a Represent algebraic concepts with physical materials, words, diagrams, tables, graphs, equations and inequalities and use appropriate technology.	SE: 240-245, 256-262, 458-460 <i>Algebra Activity</i> 431, 437-438, 450-451, 480, 487-488, 501 TWE: OEA 72
8.B.4b Use the basic functions of absolute value, square root, linear, quadratic and step to describe numerical relationships.	SE: 218-223, 226-230, 261 #50-55, 264-269, 524-530, 534-538 <i>Algebra Activity</i> 271 <i>Graphing Calculator Investigation</i> 531-532, 604 TWE: ICE 258
C. Solve problems using systems of numbers and their properties.	
8.C.4a Analyze and report the effects of changing coefficients, exponents and other parameters on functions and their graphs.	SE: 256-261, 292-296 <i>Graphing Calculator Investigation</i> 265, 278-279, 306-307, 375, 395, 531-532, 545, 546
8.C.4b Apply algebraic properties and procedures with matrices, vectors, functions and sequences using data found in business, industry and consumer situations.	SE: 237 #47-49, 242-245, 269 #56, 397 #29-30, 567-572, 715-720, 721 #1-3 <i>Graphing Calculator Investigation</i> 729-730 TWE: ICE 717
D. Use algebraic concepts and procedures to represent and solve problems.	
8.D.4 Formulate and solve linear and quadratic equations and linear inequalities algebraically and investigate nonlinear inequalities using graphs, tables, calculators and computers.	SE: 128-133, 142-147, 149-153, 171-178, 332-336, 339-343, 481-485, 489-493, 495-499, 546-552
STATE GOAL 9: Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.	
A. Demonstrate and apply geometric concepts involving points, lines, planes, and space.	
9.A.4a Construct a model of a three-dimensional figure from a two-dimensional pattern.	SE: <i>Algebra Activity</i> 416
9.A.4b Make perspective drawings, tessellations and scale drawings, with and without the use of technology.	SE: 157, 159 #33,34, 197-201, 202 #34-36 TWE: OEA 157, 196, 203 - transformations (the foundations of tessellations) are found on pages 197-202 - the students interpret scale drawings
B. Identify, describe, classify, and compare relationships using points, lines, planes, and solids.	
9.B.4 Recognize and apply relationships within and among geometric figures.	SE: 124 #24, 372 #41, 414 #43-48, 605-607, 616-618, 623-627, 810-817 <i>Algebra Activity</i> 122, 416, 622 TWE: OEA 621
C. Construct convincing arguments and proofs to solve problems.	
9.C.4a Construct and test logical arguments for geometric situations using technology where appropriate.	SE: 41 #44-45, 609 #48, 620 #33-35, 634-636 <i>Algebra Activity</i> 122, 622
9.C.4b Construct and communicate convincing arguments for geometric situations.	SE: 41 #44-45, 609 #48, 620 #33-35, 634-636 <i>Algebra Activity</i> 122, 622
9.C.4c Develop and communicate mathematical proofs (e.g., two-column, paragraph, indirect) and counter examples for geometric statements.	SE: 41 #44-45, 144-145 (an example of algebraic justification) 611, 616 TWE: DI 607 UM 612

LEARNING STANDARDS	PAGE REFERENCES
D. Use trigonometric ratios and circular functions to solve problems.	
9.D.4 Analyze and solve problems involving triangles (e.g., distances which cannot be measured directly) using trigonometric ratios.	SE: 623-625, 627 #1-9, 629 #61-62, 630 #63-64, 636 #55-66 <i>Algebra Activity</i> 622, 626 TWE: ICE 625

Codes Used for TWE Pages

DI	Differentiated Instruction
F	Focus
ICE	In-Class Examples
OEA	Open-Ended Assessment
UM	Unlocking Misconceptions