

**GLENCOE CORRELATION**  
**ALGEBRA 1**  
**MISSOURI**  
**Mathematics 9-12**

OBJECTIVES	PAGE REFERENCES
<b>I. Problem Solving</b>	
<i>By the end of grade 12, all students should be able to</i>	
a. use problem-solving strategies to investigate and understand mathematical content (NCTM Standard 1; MO 1.6, 3.5)	SE: 121, 123, 142-148, 151, 320-321, 567 <i>Algebra Activity 141</i> TWE: IE 143 SN 123
b. recognize and formulate problems from situations within and outside mathematics (NCTM Standard 1; MO 3.1, 3.5)	SE: 52, 128, 243, 354, 442, 513, 541, 605 <i>Algebra Activity 293</i> <i>Reading Mathematics 714</i>
c. organize, develop and apply integrated mathematical problem-solving strategies to solve problems within and outside mathematics (NCTM Standard 1; MO 3.2, 3.3)	SE: 12, 17-18, 89, 161, 206 <i>Algebra Activity 49, 376, 416</i> <i>Graphing Calculator Investigation 418</i>
d. apply the process of mathematical modeling to real-world situations (NCTM Standard 1; MO 2.1, 3.6)	SE: 73, 88, 131, 240, 262, 299, 325, 354, 460, 567
e. analyze, evaluate, and reflect upon the process(es) used in solving problems (NCTM Standard 1; MO 2.2, 3.4, 3.6, 3.7, 3.8)	SE: 73, 76, 88, 131, 334, 512 <i>Algebra Activity 127</i> <i>Reading Mathematics 95, 165</i>
<b>II. Communication</b>	
<i>By the end of grade 12, all students should be able to</i>	
a. reflect upon and clarify thinking about mathematical ideas and relationships (NCTM Standard 2; MO 1.6, 2.2)	SE: 53, 76, 162, 214, 328, 378, 421 <i>Algebra Activity 271</i> <i>Reading Mathematics 507</i>
b. interpret generalizations discovered through investigations to formulate, revise, and adjust mathematical definitions (NCTM Standard 2; MO 1.2, 1.7, 2.2)	SE: 21-23, 26-29, 32-34, 135-138 TWE: DI 22 OA 25, 36 SN 23, 29, 34
c. visualize mathematical ideas by reading about, listening to, or viewing concrete models (NCTM Standard 2; MO 1.9, 2.4)	SE: 43, 74, 171, 240-245, 319, 611 <i>Algebra Activity 141, 480</i> <i>Reading Mathematics 10, 263</i>
d. plan and create effective verbal and non-verbal forms of communicating mathematics for a variety of purposes and audiences (NCTM Standard 2; MO 2.1)	SE: 122-123, 145, 208, 283, 301, 341, 384, 413, 428, 662
e. present mathematical ideas and logical justifications, both written and oral (NCTM Standard 2; MO 2.1, 3.5, 4.1)	SE: 86, 131, 151, 301, 371, 396, 413, 570, 589
f. ask clarifying and extending questions about the mathematics read about, heard about, or viewed through models (NCTM Standard 2; MO 2.3)	TWE: DI 492 H 155, 160, 205, 272, 554, 648, 690 W 256, 425

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g. recognize the economy, power, and elegance of mathematics notation and its role in the development of mathematical ideas (NCTM Standard 2; MO 1.6, 1.9, 2.4)	SE: 227-228, 230-231, 245, 319, 425-430 <i>Study Guide and Review</i> 250, 465-466 TWE: IE 228 OA 430
h. read, write, and talk about mathematical ideas as they relate to real-life applications and multiple workplace situations (NCTM Standard 2; MO 1.10, 2.6, 3.2, 4.8)	SE: 32, 84, 120, 160, 192, 410, 533, 642 <i>Spreadsheet Investigation</i> 56
<b>III. Reasoning</b> <i>By the end of grade 12, all students should be able to</i>	
a. make and test conjectures (NCTM Standard 3; MO 1.7)	SE: 270, 291, 305 <i>Algebra Activity</i> 28, 102, 207, 416, 501, 573 <i>Reading Mathematics</i> 424
b. defend the validity of their conclusions using mathematical strategies (NCTM Standard 3; MO 3.4, 3.7, 3.8, 4.1)	SE: 38-42, 48 <i>Algebra Activity</i> 49 TWE: H 37 IE 38 OA 42
c. follow the mathematical reasoning of others and determine validity (NCTM Standard 3; MO 1.5, 2.3)	SE: 37-39 <i>Reading Mathematics</i> 95 TWE: H 37 IE 38, 39 TT 25
d. apply inductive and deductive reasoning (NCTM Standard 3; MO 3.5)	SE: 38-39, 41, 240-245 <i>Reading Mathematics</i> 239 TWE: AE 41 IE 241
<b>IV. Connections</b> <i>By the end of grade 12, all students should be able to</i>	
a. recognize and/or derive equivalent representations for a concept (NCTM Standard 4; MO 1.6)	SE: 16-18, 75-76, 135-136, 142-143, 155-156, 272-273, 376, 382, 546-547 TWE: DI 76 OA 277
b. analyze and relate procedures in multiple representations (NCTM Standard 4; MO 1.5, 3.6)	SE: 16-18, 75-76, 135-136, 142-143, 155-156, 272-273, 376, 382, 546-547 TWE: DI 76 OA 277
c. relate and describe the connections within topics of mathematics and other disciplines (NCTM Standard 4; MO 1.6, 1.8, 1.10)	SE: 13, 75, 192, 269, 397, 425, 460, 543, 591, 782
d. investigate and determine the importance of mathematics in their lives, future careers, and our ever-changing global society (NCTM Standard 4; MO 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8)	SE: 13, 75, 215, 425, 485, 591, 649 <i>Why It's Important</i> 4, 190
e. evaluate the logic and aesthetics of mathematics as they relate to the universe (NCTM Standard 4; MO 1.10, 2.4)	SE: 47, 92, 135, 136, 153, 303, 378, 548, 688

OBJECTIVES	PAGE REFERENCES
<b>V. Number Sense</b>	
<i>By the end of grade 12, all students should be able to</i>	
a. develop, analyze, and explain procedures used for representing and analyzing relationships in tables, verbal rules, equations, and graphs (NCTM Standards 5 and 6; MO 1.6, 1.8, 1.10, 2.6)	SE: 43-48, 213-214, 220, 242-245 <i>Algebra Activity 49</i> <i>Graphing Calculator Investigation 224-225, 265</i> <i>Mixed Problem Solving 856</i> <i>Study Guide and Review 61-62, 250</i>
b. analyze the effects of parameter changes on the graphs of functions (NCTM Standards 5 and 6; MO 1.6, 3.6, 4.1, 4.7)	SE: 212-217, 218-223, 226-231 <i>Graphing Calculator Investigation 224-225</i> <i>Study Guide and Review 248-249</i>
c. analyze and describe relationships and the resulting effects between changes in an independent variable and a dependent variable (NCTM Standards 5 and 6; MO 1.6, 3.3, 4.1)	SE: 44, 46, 213-214, 216 <i>Algebra Activity 271</i>
<b>VI. Geometric and Spatial Sense</b>	
<i>By the end of grade 12, all students should be able to</i>	
a. interpret and draw three-dimensional objects (NCTM Standard 7; MO 1.5, 1.9, 2.7)	SE: 124-125, 415, 456, 513, 670 <i>Getting Started 409</i> <i>Prerequisite Skills 812</i>
b. represent and solve problem situations with geometric models and apply properties of figures (NCTM Standard 7; MO 1.3, 2.7, 3.7)	SE: 8, 69, 122, 125, 134, 147, 688 <i>Algebra Activity 122</i>
c. classify figures in terms of congruence and similarity and apply these relationships (NCTM Standard 7; MO 1.1., 1.4, 1.6, 3.5)	SE: 616-621 <i>Prerequisite Skills 810-811</i> TWE: DI 618 IE 617, 618
d. deduce properties of, and relationships between, figures from given assumptions (NCTM Standard 7; MO 1.6, 1.8, 2.4, 3.5)	SE: 292-293 <i>Algebra Activity 293, 416</i> TWE: A 416 H 292
e. translate between synthetic and coordinate representations using a variety of methods and technologies (NCTM Standard 8; MO 1.4, 2.7)	SE: 43-48, 192-196, 198-203 <i>Algebra Activity 49</i> <i>Graphing Calculator Investigation 204</i> TWE: IE 44, 45, 193 OA 196
f. deduce properties of figures using transformations and coordinates (NCTM Standard 8; MO 2.4, 3.5)	SE: 200, 202-203
g. identify congruent and similar figures using transformations (NCTM Standard 8; MO 1.5, 3.5, 3.6)	SE: 198, 200-202, 415, 559 <i>Graphing Calculator Investigation 556</i>
h. analyze properties of transformations and relate translations to vectors (NCTM Standard 8; MO 1.6, 2.4, 3.6, 4.1)	SE: 197-203, 211, 415 <i>Extra Practice 828</i> TWE: OA 203
i. apply an understanding of perimeter, area, volume, angle measure, capacity, weight and mass (NCTM Standard 7; MO 2.5, 3.3, 4.1)	SE: 149, 512, 611-615, 688 <i>Algebra Activity 416</i> <i>Getting Started 409</i> <i>Study Guide and Review 635</i> TWE: DI 613

OBJECTIVES	PAGE REFERENCES
j. model, describe, and analyze maximum and minimum points on a graph (NCTM Standard 13; MO 1.6, 2.1, 4.3, 4.7)	SE: 524-530 <i>Graphing Calculator Investigation</i> 531-532 <i>Study Guide and Review</i> 574 TWE: DI 526 IE 525, 526, 527
k. model, describe, and analyze patterns of sequences through processes of geometric change, approximations, and limits (NCTM Standard 14; MO 1.6, 2.1, 4.3, 4.7)	SE: 240-241, 243-245, 567-572 TWE: IE 241, 568, 569 OA 245, 572
l. recognize and apply trigonometry to problem situations (NCTM Standard 9; MO 3.1, 3.6, 4.2, 4.8)	SE: 623-630 <i>Algebra Activity</i> 622 TWE: H 623 IE 624, 625, 626 OA 630 SN 627
<b>VII. Data Analysis, Probability and Statistics</b> <i>By the end of grade 12, all students should be able to</i>	
a. interpret and summarize data from charts, tables, and graphs that appear in real-world situations (NCTM Standard 10; MO 1.1, 1.8)	SE: 50-55, 88-94, 209, 298-305, 722-728, 731-734, 737-742 <i>Algebra Activity</i> 49 <i>Spreadsheet Investigation</i> 56 TWE: IE 91
b. apply curve-fitting to make defensible predictions (NCTM Standard 10; MO 1.4, 2.7, 3.2)	SE: 298-305 <i>Graphing Calculator Investigation</i> 306-307 TWE: IE 299, 300, 301 OA 305
c. apply the appropriate statistical measures including central tendency, variability, and correlation to a situation (NCTM Standard 10; MO 1.2, 1.5, 3.2)	SE: 84, 87, 90-93, 156, 731-736 <i>Getting Started</i> 67, 707 <i>Study Guide and Review</i> 113 TWE: DI 91, 733 IE 91
d. investigate the effects of data transformations on variability and measures of central tendency (NCTM Standard 10; MO 1.1, 1.4, 2.7)	SE: 733-736, 737, 739 <i>Extra Practice</i> 850 <i>Study Guide and Review</i> 747-748 TWE: IE 733
e. investigate the concept of a random variable (NCTM Standard 10; MO 1.4, 2.7, 3.2)	SE: 777-781 TWE: IE 778
f. design and interpret situations to estimate probabilities (NCTM Standard 11; MO 1.3, 3.3, 3.6)	SE: 762, 769-770, 773 <i>Study Guide and Review</i> 790 TWE: IE 770, 771, 772
g. apply theoretical probability to real-world problems (NCTM Standard 11; MO 1.7, 3.8)	SE: 782, 784 <i>Algebra Activity</i> 783 <i>Extra Practice</i> 852 <i>Study Guide and Review</i> 792
h. apply experimental probability to real-world problems (NCTM Standard 11; MO 1.7, 3.8)	SE: 782-784 <i>Algebra Activity</i> 783 <i>Extra Practice</i> 852 <i>Study Guide and Review</i> 792 TWE: DI 784 IE 783 T 785

OBJECTIVES	PAGE REFERENCES
i. collect, plot, and interpret data, including that from a discrete probability distribution (NCTM Standard 11; MO 1.2, 1.6, 3.6)	SE: 96-101, 763, 765-766, 769-776 <i>Algebra Activity 102</i> TWE: IE 770, 771, 772 OA 776
j. develop, interpret, and apply the normal curve in problem solving (NCTM Standard 11; MO 1.1, 3.2, 3.4)	SE: 96-101, 763, 765-766, 769-776 <i>Algebra Activity 102</i> TWE: IE 770, 771, 772 OA 776
k. determine and interpret maximum and minimum values within a data set, on a graph, or in a problem situation (NCTM Standard 13; MO 1.3, 2.1, 3.6)	SE: 733-736, 737, 739 <i>Extra Practice 850</i> <i>Study Guide and Review 747-748</i> TWE: IE 733
l. analyze an infinite series as it relates to a limiting value (NCTM Standard 13; MO 1.6, 1.8, 3.2)	SE: 68
<b>VIII. Patterns and Relationships</b>	
<i>By the end of grade 12, all students should be able to</i>	
a. compare and contrast the real number system and its various subsystems with regard to their structural characteristics (NCTM Standard 14; MO 1.6, 1.8)	SE: 68, 70, 104-106 <i>Extra Practice 825</i> <i>Study Guide and Review 114</i> TWE: SN 107
b. represent and analyze relationships using verbal rules, tables and graphs as tools to interpret expressions, equations and inequalities (NCTM Standards 5 and 6; MO 1.6, 1.8, 2.1, 3.3)	SE: 121-126, 166-170, 172-173, 332-337, 339-344 <i>Study Guide and Review 180-181</i> TWE: IE 121, 167
c. translate among tabular, symbolic, and graphical representations of functions and model real-world phenomena with a variety of functions (NCTM Standard 6; MO 1.6, 1.8, 2.2, 3.6)	SE: 226-231, 242-245, 436, 524-530, 554-560 TWE: DI 219, 227, 557
d. represent situations that involve variable quantities with expressions, equations and inequalities (NCTM Standard 5; MO 1.6, 1.8, 3.3)	SE: 121-126, 166-170, 172-173, 332-337, 339-344 <i>Study Guide and Review 180-181</i> TWE: IE 121, 167
e. solve equations and inequalities (NCTM Standard 5; MO 1.6, 1.8, 2.2, 3.3)	SE: 121-126, 166-170, 172-173, 332-337, 339-344 <i>Study Guide and Review 180-181</i> TWE: IE 121, 167
f. translate between synthetic and coordinate representation for geometric relationships (NCTM Standard 8; MO 1.6, 1.8, 2.2, 3.3)	SE: 197-203 TWE: H 197 IE 198, 199, 200
g. investigate limiting processes by examining infinite sequences and series (NCTM Standard 13; MO 1.6, 1.8, 3.3)	SE: 68, 229-230, 267
h. apply trigonometry to problem situations involving triangles and explore real-world phenomena using the sine, cosine, and tangent functions (NCTM Standard 9; MO 1.6, 1.8, 2.2, 3.6)	SE: 623-630 <i>Algebra Activity 622</i> TWE: H 623 IE 624, 625, 626 OA 630 SN 627

OBJECTIVES	PAGE REFERENCES
i. analyze effects of parameter changes on the graphs of functions using a variety of technologies to gather data (NCTM Standard 6; MO 1.4, 1.6, 2.7, 3.3)	SE: 52, 54 <i>Algebra Activity</i> 271 TWE: IE 52
<b>IX. Mathematical Systems and Number Theory</b> <i>By the end of grade 12, all students should be able to</i>	
a. compare and contrast the real number system and its various subsystems (NCTM Standard 14; MO 2.1, 4.1)	SE: 68, 70, 104-106 <i>Extra Practice</i> 825 <i>Study Guide and Review</i> 114 TWE: SN 107
b. select and apply appropriate technology as a problem-solving tool to achieve understanding of the logic of algebraic and geometric procedures (NCTM Standard 14; MO 1.4, 3.6)	SE: 15, 210, 430, 538, 603, 624, 728 <i>Graphing Calculator Investigation</i> 224-225, 729
c. investigate and determine similarities and differences between mathematical systems (NCTM Standard 14; MO 2.1, 4.1, 4.6)	SE: 50-55, 88-94, 96-101, 233-238, 292-297, 298-305, 567-572, 623-630, 782-788
d. extend understanding and application of number theory concepts (NCTM Standard 6; MO 1.6, 3.2, 3.3)	SE: 41, 70, 98, 144, 153, 244, 336, 392, 447, 478
<b>X. Discrete Mathematics</b> <i>By the end of grade 12, all students should be able to</i>	
a. explore and solve application problems involving graph theory (airline routes, circuits, paths, connecting roads, coloring a map, etc.) (NCTM Standard 12; MO 1.6, 1.8, 2.2, 3.2, 3.3, 3.6)	SE: 194-195 TWE: IE 194 OA 196
b. use tree, Venn, or student-developed diagrams as problem-solving tools (NCTM Standard 12; MO 3.2, 3.3, 3.6)	SE: 41, 68, 70, 754, 756, 760, 767, 774-775 <i>Study Guide and Review</i> 789
c. use concepts from logic and/or truth tables to recognize valid and invalid arguments (NCTM Standard 3; MO 2.2, 3.5)	See Glencoe's <i>Algebra 2</i> © 2003 SE: <i>Critical Thinking</i> 114, 133, 255, 364, 416, 452, 489, 537, 587 TWE: E 586
d. explore applications from counting techniques such as Pascal's Triangle, permutations, combinations, and Fibonacci sequence (NCTM Standard 12; MO 1.6, 2.2, 3.6)	SE: 244, 754-758, 760-767 <i>Algebra Activity</i> 102 TWE: DI 755 IE 755, 756, 762, 763 OA 758
e. investigate the concepts of <i>game theory</i> * (NCTM Standard 1; MO 3.2, 3.7, 3.8) * <i>game theory</i> : selecting the best strategies in order to achieve the most favorable outcomes. Games are defined as having two or more players with conflicting interests.	SE: 100, 422
f. explore concepts from election theory (NCTM Standard 1; MO 3.2, 3.7, 4.2, 4.3)	See Glencoe's <i>Algebra 2</i> © 2003 SE: <i>Check for Understanding</i> 655

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g. investigate different approaches to apportionment and fair division, then explore their applications (e.g., division of property in estates, apportionment in the House of Representatives) (NCTM Standard 1; MO 3.2, 3.3, 3.7, 4.3)	SE: 84-87, 661, 663, 669-670 TWE: IE 661
h. use the concept of recursion in mathematics to solve application problems (e.g., compound interest, depreciation, radium decay, maximum storage in the least amount of space, fractals) (NCTM Standard 12; MO 1.8, 2.2, 3.2, 3.7)	SE: 561-565 <i>Reading Mathematics</i> 566 <i>Study Guide and Review</i> 577-578 TWE: DI 562 IE 562, 563 OA 565

### Codes Used for TWE Pages

A	Assess
AE	About the Exercises
DI	Daily Intervention
H	How
IE	In-Class Examples
OA	Open-Ended Assessment
SN	Study Notebook
T	Teacher to Teacher
TT	Teaching Tip
W	Why