

GLENCOE CORRELATION
ALGEBRA 2
MISSOURI
Mathematics 9-12

OBJECTIVES	PAGE REFERENCES
I. Problem Solving	
<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: 23, 140-141, 247, 386, 773 TWE: IE 97, 289, 331, 422
b. recognize and formulate problems from situations within and outside mathematics (NCTM Standard 1; MO 3.1, 3.5)	SE: 23, 197-198, 203, 705, 773 TWE: IE 97, 289, 331, 422
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: 23, 203, 492-495, 705, 773 TWE: IE 97, 289, 331, 422
d. apply the process of mathematical modeling to real-world situations (NCTM Standard 1; MO 2.1, 3.6)	SE: 23, 197-198, 203, 705, 773 TWE: IE 97, 289, 331, 422
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: 23, 140-141, 247, 386, 773 TWE: A 27, 797 DI 24
II. Communication	
<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: <i>Concept Check</i> 156, 178, 273, 317, 397, 437, 527, 586, 654
b. interpret generalizations discovered through investigations to formulate, revise, and adjust mathematical definitions (NCTM Standard 2; MO 1.2, 1.7, 2.2)	SE: <i>Graphing Calculator Investigation</i> 87-88 <i>Algebra Activity</i> 230, 272, 417-418, 453-454, 522 TWE: DI 556
c. visualize mathematical ideas by reading about, listening to, or viewing concrete models (NCTM Standard 2; MO 1.9, 2.4)	SE: <i>Algebra Activity</i> 252, 308, 392, 421, 607, 651 TWE: DI 309, 422, 549, 608
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: <i>Concept Check</i> 156, 265, 325, 350, 437, 774 TWE: A 312, 358, 448, 657
e. present mathematical ideas and logical justifications, both written and oral (NCTM Standard 2; MO 2.1, 3.5, 4.1)	SE: <i>Concept Check</i> 71, 98, 171, 185, 397, 414 TWE: A 122, 181, 256, 399
f. ask clarifying and extending questions about the mathematics read about, heard about, or viewed through models (NCTM Standard 2; MO 2.3)	SE: <i>Algebra Activity</i> 19, 83, 240, 252, 432, 437, 522, 607, 681, 686, 716 TWE: TT 21

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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: 34-35, 56-59, 225, 585 TWE: A 39, 62, 587
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: <i>How</i> 6, 89, 245, 419 <i>Writing in Math</i> 10, 94, 249, 425 TWE: IE 427, 659
III. Reasoning <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: <i>Algebra Activity</i> 19, 83, 240, 252, 432, 437, 522, 607, 681 TWE: DI 82
b. defend the validity of their conclusions using mathematical strategies (NCTM Standard 3; MO 3.4, 3.7, 3.8, 4.1)	SE: 618-621 TWE: A 620
c. follow the mathematical reasoning of others and determine validity (NCTM Standard 3; MO 1.5, 2.3)	SE: 618-621 TWE: E 622
d. apply inductive and deductive reasoning (NCTM Standard 3; MO 3.5)	SE: <i>Algebra Activity</i> 19, 32, 83, 119, 240, 252, 432, 437, 489, 522, 558, 585, 607, 681, 686, 716 TWE: DI 82
IV. Connections <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: 14, 203, 258, 595, 601 TWE: AA 13 DI 119, 259
b. analyze and relate procedures in multiple representations (NCTM Standard 4; MO 1.5, 3.6)	SE: 14, 203, 258, 595, 601 TWE: AA 13 DI 119, 259
c. relate and describe the connections within topics of mathematics and other disciplines (NCTM Standard 4; MO 1.6, 1.8, 1.10)	SE: 355, 561, 705, 802 <i>Practice and Apply</i> 67, 227, 318, 489 TWE: IE 386
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: <i>Career Choices</i> 85, 126, 187, 334, 363, 496, 511, 707 TWE: DI 82
e. evaluate the logic and aesthetics of mathematics as they relate to the universe (NCTM Standard 4; MO 1.10, 2.4)	SE: <i>Check for Understanding</i> 93, 98, 171, 226, 356, 458, 495, 544, 712 TWE: IE 542
V. Number Sense <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: 56-59, 578-580 TWE: IE 59

OBJECTIVES	PAGE REFERENCES
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: 70-71, 91, 322-323 <i>Graphing Calculator Investigation</i> 320-321 TWE: F 322 IE 91
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: 56-59 TWE: A 62 IE 59
VI. Geometric and Spatial Sense <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: 22 <i>Maintain Your Skills</i> 18 <i>Practice and Apply</i> 25 TWE: IE 22
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: <i>Algebra Activity</i> 308 <i>Practice and Apply</i> 243, 292, 311, 477, 609 TWE: DI 309
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: 175-181 TWE: A 181
d. deduce properties of, and relationships between, figures from given assumptions (NCTM Standard 7; MO 1.6, 1.8, 2.4, 3.5)	SE: 175-181 TWE: A 181
e. translate between synthetic and coordinate representations using a variety of methods and technologies (NCTM Standard 8; MO 1.4, 2.7)	SE: 175-178 <i>Practice and Apply</i> 744 TWE: A 181
f. deduce properties of figures using transformations and coordinates (NCTM Standard 8; MO 2.4, 3.5)	SE: 175-181 TWE: A 181
g. identify congruent and similar figures using transformations (NCTM Standard 8; MO 1.5, 3.5, 3.6)	SE: 175-181 TWE: A 181
h. analyze properties of transformations and relate translations to vectors (NCTM Standard 8; MO 1.6, 2.4, 3.6, 4.1)	SE: 175-181 TWE: A 181
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: <i>Check for Understanding</i> 502 <i>Practice and Apply</i> 9, 26, 187, 334, 415, 615 <i>Maintain Your Skills</i> 382 TWE: IE 367
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: 354-358 TWE: A 358
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: 588-590, 594-597 TWE: A 592, 598

OBJECTIVES	PAGE REFERENCES
l. recognize and apply trigonometry to problem situations (NCTM Standard 9; MO 3.1, 3.6, 4.2, 4.8)	SE: 701-705, 729, 735, 742, 748 TWE: A 708
VII. Data Analysis, Probability and Statistics <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: 81-86 <i>Algebra Activity 522, 681</i> <i>Graphing Calculator Investigation 359</i> TWE: AA 83
b. apply curve-fitting to make defensible predictions (NCTM Standard 10; MO 1.4, 2.7, 3.2)	SE: 81-86 <i>Graphing Calculator Investigation 87-88, 359</i> TWE: E 85
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: 664-669 TWE: A 670
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: 664-669 TWE: A 670
e. investigate the concept of a random variable (NCTM Standard 10; MO 1.4, 2.7, 3.2)	SE: 646-649 TWE: DI 646
f. design and interpret situations to estimate probabilities (NCTM Standard 11; MO 1.3, 3.3, 3.6)	SE: 644-646, 651-653, 658-660 TWE: A 650
g. apply theoretical probability to real-world problems (NCTM Standard 11; MO 1.7, 3.8)	SE: 644-646, 651-653, 658-660 TWE: A 650
h. apply experimental probability to real-world problems (NCTM Standard 11; MO 1.7, 3.8)	SE: 644-646, 651-653, 658-660 TWE: A 650
i. collect, plot, and interpret data, including that from a discrete probability distribution (NCTM Standard 11; MO 1.2, 1.6, 3.6)	SE: 81-86, 646-647 TWE: IE 646
j. develop, interpret, and apply the normal curve in problem solving (NCTM Standard 11; MO 1.1, 3.2, 3.4)	SE: 671-675 TWE: IE 672
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: 354-358 TWE: A 358
l. analyze an infinite series as it relates to a limiting value (NCTM Standard 13; MO 1.6, 1.8, 3.2)	SE: 599-603 TWE: A 604 E 510
VIII. Patterns and Relationships <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: 11-17 TWE: A 18

OBJECTIVES	PAGE REFERENCES
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: 6-7, 75-78, 96-97 TWE: A 80
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: 56-59, 578-580 TWE: IE 59
d. represent situations that involve variable quantities with expressions, equations and inequalities (NCTM Standard 5; MO 1.6, 1.8, 3.3)	SE: 6-7, 36, 75-78 TWE: A 80
e. solve equations and inequalities (NCTM Standard 5; MO 1.6, 1.8, 2.2, 3.3)	SE: 20-23, 33-36 TWE: A 27, 39
f. translate between synthetic and coordinate representation for geometric relationships (NCTM Standard 8; MO 1.6, 1.8, 2.2, 3.3)	SE: 175-178 <i>Practice and Apply 744</i> TWE: A 181
g. investigate limiting processes by examining infinite sequences and series (NCTM Standard 13; MO 1.6, 1.8, 3.3)	SE: 578-580, 583-585, 588-589 TWE: A 582, 587
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: 701-705, 729, 735, 742, 748 TWE: A 708
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: 70-71, 91, 322-323 <i>Graphing Calculator Investigation 320-321</i> TWE: F 322 IE 91
IX. Mathematical Systems and Number Theory <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: 11-17 TWE: A 18
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: <i>Graphing Calculator Investigation 70, 208, 241, 355-356, 798</i> <i>Spreadsheet Investigation 159, 605, 700</i>
c. investigate and determine similarities and differences between mathematical systems (NCTM Standard 14; MO 2.1, 4.1, 4.6)	SE: 11-17, 270-273 TWE: A 18
d. extend understanding and application of number theory concepts (NCTM Standard 6; MO 1.6, 3.2, 3.3)	SE: 295 <i>Check for Understanding 297</i> <i>Practice and Apply 15, 298, 304, 510</i> TWE: IE 295

OBJECTIVES	PAGE REFERENCES
X. Discrete Mathematics	
<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)	TWE: E 674
b. use tree, Venn, or student-developed diagrams as problem-solving tools (NCTM Standard 12; MO 3.2, 3.3, 3.6)	SE: 12, 271, 632 <i>Practice and Apply</i> 662 TWE: IE 633
c. use concepts from logic and/or truth tables to recognize valid and invalid arguments (NCTM Standard 3; MO 2.2, 3.5)	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: 606, 612-613, 638-642 TWE: E 616
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: 644-647, 651-653, 658-659 TWE: E 662
f. explore concepts from election theory (NCTM Standard 1; MO 3.2, 3.7, 4.2, 4.3)	SE: <i>Check for Understanding</i> 655
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)	See Glencoe's <i>Algebra 1</i> © 2003 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: 606-610 <i>Algebra Activity</i> 611 TWE: IE 607

Codes Used for TWE Pages

A	Assess
AA	Algebra Activity
DI	Daily Intervention
E	Enrichment
F	Focus
IE	In-class Example
TT	Teaching Tip