

GLENCOE CORRELATION
MATHEMATICS: APPLICATIONS AND CONCEPTS COURSE 2
MINNESOTA
Mathematics Academic Standards
Grade Seven

CONTENT STANDARDS	PAGE REFERENCES
I. MATHEMATICAL REASONING <u>Standard:</u> Apply skills of mathematical representation, communication and reasoning throughout the remaining four content strands. The student will:	
1. Assess the reasonableness of a solution by comparing the solution to appropriate graphical or numerical estimates or by recognizing the feasibility of a solution in a given context.	SE: 92-95, 240-243, 334-337 <i>Practice: Word Problems 243, 437</i> <i>Problem-Solving Strategy 338-339</i> TWE: DI 92, 241, 335, 338 A 339 <i>Practice: Word Problems 243, 437</i>
2. Appropriately use examples and counterexamples to make and test conjectures, justify solutions and explain results.	SE: 60 ex 1 <i>Hands-on Lab 37</i> <i>Problem-Solving Strategy 338-339, 444-445</i> TWE: B 160, 444 I-CE 338, 444
3. Translate a problem described verbally or by tables, diagrams or graphs, into suitable mathematical language, solve the problem mathematically and interpret the result in the original context.	SE: 87 ex 4, 150-152 <i>Hands-on Lab 37</i> <i>Problem-Solving Strategy 58-59</i> <i>Study Skills 153</i> TWE: A 36 B 150 <i>Study Guide and Intervention 185</i> <i>Practice: Skills 186</i> <i>Practice: Word Problems 187</i>
4. Support mathematical results by explaining why the steps in a solution are valid and why a particular solution method is appropriate.	SE: 6-9 <i>Problem-Solving Strategy 164-165</i> TWE: B 6 DI 7, 164 A 9, 13, 163, 251 <i>Study Guide and Intervention 1</i> <i>Practice: Skills 2</i>
5. Determine whether or not relevant information is missing from a problem.	SE: 6-9
6. Use accurately common logical words and phrases such as “and,” “or,” “if ... then ...,” “unique,” “only if.”	SE: <i>Problem-Solving Strategy 444-445</i>

CONTENT STANDARDS	PAGE REFERENCES
II. NUMBER SENSE, COMPUTATION AND OPERATIONS	
A. Number Sense	
<p><u>Standard:</u> Use positive and negative rational numbers, represented in a variety of ways, to quantify information and to solve real-world and mathematical problems.</p> <p>The student will:</p>	
1. Represent rational numbers as fractions, mixed numbers, decimals or percents and convert among various forms as appropriate.	SE: 210-213, 216-219, 220-223 TWE: B 210 I-CE 211 A 213, 219 <i>Practice: Skills 259, 264, 269</i>
2. Use scientific notation with positive powers of 10, with appropriate treatment of significant digits, to solve real-world and mathematical problems.	SE: 43-45 <i>Study Guide and Review 48 #53-#60</i> <i>Practice Test 49 #22-#24</i> TWE: DI 43 I-CE 44 A 45 <i>Study Guide and Intervention 41</i> <i>Practice: Skills 42</i> <i>Practice: Word Problems 43</i>
3. Locate and compare positive and negative rational numbers on a number line.	SE: 106-108, 109-111 TWE: B 106 A 108, 111 <i>Study Guide and Intervention 134</i> <i>Practice: Skills 130</i>
B. Computation and Operation	
<p><u>Standard:</u> Compute fluently and make reasonable estimates with rational numbers in real-world and mathematical problems. Understand the meanings of the basic operations, including the use of integer exponents and square roots, and how the operations relate to one another. Appropriately use calculators and other technologies to solve problems.</p> <p>The student will:</p>	
1. Add, subtract, multiply and divide fractions and mixed numbers.	SE: 244-247, 248-251, 254-257, 264-266 <i>The Game Zone 263</i> TWE: B 244 I-CE 245 DI 249 A 251
2. Use the inverse relationship between extracting square roots and squaring positive integers to solve real-world and mathematical problems.	SE: 470-473 <i>Mid-Chapter Practice Test 486 #4-#7</i> TWE: B 470 I-CE 471 DI 471 A 473 <i>Study Guide and Intervention 609</i> <i>Practice: Skills 610</i> <i>Practice: Word Problems 611</i>

CONTENT STANDARDS	PAGE REFERENCES
3. Calculate the percentage of increase and decrease of a quantity in real-world and mathematical problems.	SE: 350-353 <i>Study Guide and Review</i> 363 #27-#31 <i>Practice Test</i> 365 #12-#14 TWE: B 350 I-CE 351 A 353 <i>Study Guide and Intervention</i> 450 <i>Practice: Skills</i> 451 <i>Practice: Word Problems</i> 452
4. Convert among fractions, decimals and percents and use these representations for estimations and computations in real-world and mathematical problems.	SE: 210-213, 216-219, 220-223, 312-315 TWE: I-CE 211 A 213, 223 B 216, 220 <i>Practice: Word Problems</i> 260, 265, 270
5. Understand and compute positive integer powers of nonnegative integers and express examples as repeated multiplication such as $3^4 = 3 \times 3 \times 3 \times 3 = 81$.	SE: 10-13, 17 #56-#65 TWE: B 10 DI 11 I-CE 11 A 13 <i>Study Guide and Intervention</i> 6 <i>Practice: Skills</i> 7 <i>Practice: Word Problems</i> 8
6. Apply the correct order of operations and grouping symbols when using calculators and other technologies.	SE: <i>Study Tip</i> 11 See the <i>Calculator Spreadsheet Masters</i> workbook.
7. Know, use and translate calculator notational conventions to mathematical notation.	SE: 210 ex 1-4 <i>Study Tip</i> 11, 44, 120, 276, 382 <i>Graphing Calculator Investigation</i> 84
8. Understand that use of a calculator requires appropriate mathematical reasoning and does not replace the need for mental computation.	TWE: DI 313 TT 493 <i>Calculator Spreadsheet Masters</i> 3 #16
III. PATTERNS, FUNCTIONS AND ALGEBRA	
A. Patterns and Functions	
<u>Standard:</u> Demonstrate an understanding of rate of change graphically and numerically. The student will:	
1. Demonstrate, numerically and graphically, an understanding that rate is a measure of change of one quantity per unit change of another quantity in real-world and mathematical problems.	SE: 177-181, 292-295 <i>Hands-on Lab</i> 176 TWE: B 177, 292 A 181 <i>Practice: Skills</i> 211 <i>Practice: Word Problems</i> 212

CONTENT STANDARDS	PAGE REFERENCES
2. Plot points on the graph of a linear function and identify the slope or rate of change.	SE: 177-181, 182-185 TWE: A 181 DI 183 <i>Study Guide and Intervention</i> 210, 215 <i>Practice: Skills</i> 211, 216 <i>Practice: Word Problems</i> 212, 217
B. Algebra (Algebraic Thinking) Standard: Apply arithmetic operations in the correct order to generate equivalent algebraic expressions and to solve simple formulas in real-world and mathematical problems. The student will:	
1. Apply the correct order of operations including addition, subtraction, multiplication, division and grouping symbols to generate equivalent algebraic expressions.	SE: 18-21, 27 #50 <i>Mid-Chapter Practice Test</i> 28 #11-#14 <i>The Game Zone</i> 29 TWE: I-CE 19 A 21 <i>Study Guide and Intervention</i> 16 <i>Practice: Skills</i> 17 <i>Practice: Word Problems</i> 18
2. Use the facts that the sum of a number and its opposite is zero and the product of a number and its reciprocal is one to generate equivalent algebraic expressions.	SE: 30-33 <i>Study Guide and Review</i> 48 #43 TWE: DI 31 I-CE 31 #4 and #6 A 33 <i>Study Guide and Intervention</i> 26 <i>Practice: Skills</i> 27 <i>Practice: Word Problems</i> 28
3. Solve simple formulas with up to three variables, when the values of two of the variables are given.	SE: 479-482 <i>Hands-on Lab</i> 478 <i>Mid-Chapter Practice Test</i> 486 #11-#12 TWE: I-CE 480 A 482 <i>Study Guide and Intervention</i> 619 <i>Practice: Skills</i> 620 <i>Practice: Word Problems</i> 621
IV. DATA ANALYSIS, STATISTICS AND PROBABILITY	
A. Data and Statistics Standard: Represent data and use various measures associated with data to draw conclusions and identify trends. The student will:	
1. Construct and analyze simple scatter plots.	SE: 60-63 TWE: DI 60 I-CE 61 #2 A 63 <i>Study Guide and Intervention</i> 72 <i>Practice: Skills</i> 73 <i>Practice: Word Problems</i> 74

CONTENT STANDARDS	PAGE REFERENCES
2. Understand the meaning of and be able to compute minimum, maximum, range, median, mean and mode of a data set.	SE: 69-72 <i>Hands-on Lab 73</i> <i>The Game Zone 75</i> TWE: DI 69 I-CE 70 A 72 <i>Study Guide and Intervention 82</i> <i>Practice: Skills 83</i> <i>Practice: Word Problems 84</i>
B. Probability <u>Standard:</u> Calculate and express probabilities numerically and apply probability concepts to solve real-world and mathematical problems. The student will:	
1. Express probabilities as percentages, fractions, proportions and decimals.	SE: 370-373, 375 ex 3, 393-396, 398-401 <i>The Game Zone 385</i> <i>Hands-on Lab 397</i> TWE: <i>Practice: Word Problems 487</i>
2. Use a variety of experiments to explore the relationship between experimental and theoretical probabilities.	SE: 393-396, 398-401 <i>Hands-on Lab 397</i> TWE: B 393 DI 394 A 395, 397 <i>Study Guide and Intervention 510</i> <i>Practice: Skills 511</i> <i>Practice: Word Problems 512</i>
V. SPATIAL SENSE, GEOMETRY AND MEASUREMENT	
A. Spatial Sense <u>Standard:</u> Recognize the relationship between different representations of two- and three-dimensional shapes. Understand the effect of various transformations. The student will:	
1. Recognize a view of a three-dimensional shape, given a view from a different orientation.	SE: 514-517 <i>Hands-on Lab 512-513</i> TWE: A 513, 517 TT 514 I-CE 515 DI 515 <i>Study Guide and Intervention 669</i> <i>Practice: Skills 670</i> <i>Practice: Word Problems 671</i>
2. Use visual representations of transformations such as reflections, rotations, translations and change of scale in one and two dimensions to solve real-world and mathematical problems.	SE: 446-450, 451-454, 456-459 <i>Spreadsheet Investigation 455</i> <i>Hands-on Lab 460-461</i> TWE: DI 451, 456 A 454, 461 <i>Practice: Word Problems 459</i>

CONTENT STANDARDS	PAGE REFERENCES
B. Geometry <u>Standard:</u> Use basic geometric principles and proportional reasoning to solve real-world and mathematical problems. The student will:	
1. Calculate the radius, diameter, circumference and area of a circle given any one of these.	SE: 275-277, 493-495 <i>Hands-on Lab</i> 274 TWE: A 276, 495 DI 493 <i>Study Guide and Intervention</i> 343, 634 <i>Practice: Skills</i> 344, 635 <i>Practice: Word Problems</i> 345, 636
2. Calculate the area and perimeter of a sector of a circle given its angle and radius.	SE: 494 #23, 498-500 TWE: DI 499
3. Use ratios and proportions to interpret map scales and scale drawings.	SE: 304-308, 440-443 <i>Spreadsheet Investigation</i> 309 TWE: DI 304 I-CE 305 A 308, 443 <i>Study Guide and Intervention</i> 390 <i>Practice: Skills</i> 391 <i>Practice: Word Problems</i> 392, 570
4. Classify quadrilaterals as squares, rectangles, rhombi, parallelograms, kites, trapezoids or none of these.	SE: 434-437 <i>Mid-Chapter Practice Test</i> 438 #12-#14 <i>The Game Zone</i> 439 TWE: DI 434 B 434 I-CE 435 A 437 <i>Study Guide and Intervention</i> 563 <i>Practice: Skills</i> 564 <i>Practice: Word Problems</i> 565
C. Measurement <u>Standard:</u> Make calculations of time, length, area and volume within standard measuring systems using good judgment in choice of units. The student will:	
1. Choose appropriate units to calculate, measure, and record length, weight, area and volume in both U.S. customary and metric systems.	SE: 38-41, 267-269, 270-273, 520-522, 524-527 TWE: DI 39 I-CE 268, 271 <i>Practice: Word Problems</i> 269, 273

Codes Used for TWE Pages

A	Assess
B	Bellringer
DI	Daily Intervention
I-CE	In-Class Examples
TT	Teaching Tip