

GLENCOE CORRELATION
MATHEMATICS: APPLICATIONS AND CONCEPTS COURSE 2
OHIO
Mathematics Grade-Level Indicators
Grade Seven

STANDARDS	PAGE REFERENCES
Number, Number Sense and Operations Standard	
<i>Number and Number Systems</i>	
1. Demonstrate an understanding of place value using powers of 10 and write large numbers in scientific notation.	SE: 43-45, 48 #53-#60, 49 #22-#24 <i>Extra Practice Lesson 1-9</i> 566 #16-#33 <i>Prerequisite Skills</i> 555 <i>Mixed Problem Solving</i> 596 #15 <i>Standardized Test Practice</i> 50 #9, 51 #10, 100 #3, 147 #13
2. Explain the meaning of exponents that are negative or 0.	SE: 13 #62 (0 as an exponent) See <i>Mathematics: Applications and Concepts Course 3</i> page 99 (negative exponents).
3. Describe differences between rational and irrational numbers; e.g., use technology to show that some numbers (rational) can be expressed as terminating or repeating decimals and others (irrational) as non-terminating and non-repeating decimals.	SE: Rational numbers are defined on page 229. Irrational numbers are defined on page 176.
<i>Meaning of Operations</i>	
4. Use order of operations and properties to simplify numerical expressions involving integers, fractions and decimals.	SE: 14-17, 30-33, 47 #17-#24, 48 #40-#43, 49 #15-#16 <i>Extra Practice Lesson 1-3</i> 564 #1-#27, <i>Lesson 1-6</i> 565 #1-#24, <i>Lesson 1-7</i> 566 #1-#24 <i>Standardized Test Practice</i> 50 #2, 100 #2
5. Explain the meaning and effect of adding, subtracting, multiplying and dividing integers; e.g., how adding two integers can result in a lesser value.	SE: 120-124, 128-131, 134-137, 138-141, 142-144, 145 <i>Hands-On Lab</i> 118-119, 126-127 TWE: PS 145
<i>Computation and Estimation</i>	
6. Simplify numerical expressions involving integers and use integers to solve real-life problems.	SE: 14-17, 120-124, 128-131, 134-137, 138-141, 142-144, 145 <i>Mixed Problem Solving</i> 596 #5 <i>Standardized Practice Test</i> 147 #18
7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).	SE: 315 #38-#39, 318 #39-#42 <i>Mixed Problem Solving</i> 602 #9-#14 TWE: A 315 T 313
8. Develop and analyze algorithms for computing with percents and integers, and demonstrate fluency in their use.	SE: 120-124, 128-131, 134-137, 138-141, 334-337, 340-343, 350-353, 354-357, 358-360 TWE: B 220

STANDARDS	PAGE REFERENCES
9. Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).	SE: 10, 11, 12 #40, 106-108, 472-473 #12, #34-#36, #45, 477 #32, #34 <i>Mixed Problem Solving</i> 596 #12 TWE: B 106 A 108 DI 471 T 471 #3, #6 TI 471
Measurement Standard	
<i>Measurement Units</i>	
1. Select appropriate units for measuring derived measurements; e.g., miles per hour, revolutions per minute.	A possible connection is found in <i>Mathematics: Applications and Concepts Course 3</i> page 73 and 78.
2. Convert units of area and volume within the same measurement system using proportional reasoning and a reference table when appropriate; e.g., square feet to square yards, cubic meters to cubic centimeters.	SE: 38-41, 267-269, 273 #27, #30-32, #35-#38 <i>Extra Practice Lesson 1-8</i> 566, <i>Lesson 6-7</i> 579 <i>Mixed Problem Solving</i> 596 #13-#14 601 #10-#11 TWE: B 267
<i>Use Measurement Techniques and Tools</i>	
3. Estimate a measurement to a greater degree of precision than the tool provides.	SE: 542-545, 548 #24-#28, 549 #16 <i>Extra Practice Lesson 12-6</i> 595 TWE: DI 543 T 543
4. Solve problems involving proportional relationships and scale factors; e.g., scale models that require unit conversions within the same measurement system.	SE: 299-300 #40-#47, 304-308, 327, #31-#35 <i>Spreadsheet Investigation</i> 309 TWE: DI 289, 304
5. Analyze problem situations involving measurement concepts, select appropriate strategies, and use an organized approach to solve narrative and increasingly complex problems.	SE: 23 #9, 59 #7, 133 #9, 202 #11, 253 #4, 339 #6, 445 #6-#8, #11, #13, 497 #4, #6, #8, 519 #4, #7, #11
6. Use strategies to develop formulas for finding area of trapezoids and volume of cylinders and prisms.	SE: <i>Hands-On Lab</i> 488, <i>Hands-On Mini Lab</i> 520, 524 TWE: B 524
7. Develop strategies to find the area of composite shapes using the areas of triangles, parallelograms, circles and sectors.	SE: 498-500 <i>Extra Practice Lesson 11-7</i> 592 <i>Mixed Problem Solving</i> 606 #9 <i>Problem Solving Strategy</i> 496-497 TWE: B 498 DI 499 T 499
8. Understand the difference between surface area and volume and demonstrate that two objects may have the same surface area, but different volumes or may have the same volume, but different surface areas.	SE: <i>Hands-On Mini Lab</i> 532 TWE: A 535

STANDARDS	PAGE REFERENCES
9. Describe what happens to the surface area and volume of a three-dimensional object when the measurements of the object are changed; e.g., length of sides are doubled.	SE: 541 #20, #23 <i>Hands-On Lab</i> 536-537
Geometry and Spatial Sense Standard	
<i>Characteristics and Properties</i>	
1. Use proportional reasoning to describe and express relationships between parts and attributes of similar and congruent figures.	SE: 440-443 <i>Extra Practice Lesson 10-6</i> 588 TWE: T 441
2. Determine sufficient (not necessarily minimal) properties that define a specific two-dimensional figure or three-dimensional object. For example: a. Determine when one set of figures is a subset of another; e.g., all squares are rectangles. b. Develop a set of properties that eliminates all but the desired figure; e.g., only squares are quadrilaterals with all sides congruent and all angles congruent.	SE: 434-437, 514-515 <i>Extra Practice Lesson 10-5</i> 588 #1-#3 <i>Mixed Problem Solving</i> 605 #8 TWE: T 435 A 437 DI 515 TI 440
3. Use and demonstrate understanding of the properties of triangles. For example: a. Use Pythagorean Theorem to solve problems involving right triangles. b. Use triangle angle sum relationships to solve problems.	SE: 428-431, 479-482 <i>Extra Practice Lesson 11-3</i> 590 <i>Mixed Problem Solving</i> 605 #7, 606 #3-#4 <i>Standardized Practice Test</i> 509 #20 TWE: A 431, 482 DI 429 T 429
4. Determine necessary conditions for congruence of triangles.	SE: <i>Key Concept</i> 429
5. Apply properties of congruent or similar triangles to solve problems involving missing lengths and angle measures.	SE: 428-431, 431 #24 & #28, 441-443 <i>Extra Practice Lesson 10-6</i> 588 <i>Mixed Problem Solving</i> 605 #9 TWE: DI 441
<i>Spatial Relationships</i>	
6. Determine and use scale factors for similar figures to solve problems using proportional reasoning.	SE: 304-308, 443 #13-#17 <i>Extra Practice Lesson 7-4</i> 581 <i>Mixed Problem Solving</i> 602 #7-#8 <i>Spreadsheet Investigation</i> 309 TWE: T 305
<i>Transformations and Symmetry</i>	
7. Identify the line and rotation symmetries of two-dimensional figures to solve problems.	SE: 456-459 <i>Hands-On Lab</i> 460-461
8. Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).	SE: 451-454, 456-459 <i>Extra Practice Lesson 10-8</i> 589, <i>Lesson 10-9</i> 589 <i>Hands-On Lab</i> 460-461 <i>Mixed problem Solving</i> 605 #11-#12 <i>Spread Sheet Investigation</i> 455 TWE: T 452, 457, 460-461

STANDARDS	PAGE REFERENCES
<i>Visualization and Geometric Models</i>	
9. Draw representations of three-dimensional geometric objects from different views.	SE: 514-517 <i>Extra Practice Lesson 12-1</i> 593 <i>Hands-On Lab</i> 512-513 <i>Mixed Problem Solving</i> 607 #1 TWE: A 517 T 515
Patterns, Functions and Algebra Standard	
<i>Use Patterns, Relations and Functions</i>	
1. Represent and analyze patterns, rules and functions with words, tables, graphs and simple variable expressions.	SE: 36 #25 & #26, 88 #7-#10, #15, 177-181, 188 #54-#62 <i>Extra Practice Lesson 4-6</i> 573 <i>Hands-On Lab</i> 176 <i>Mixed Problem Solving</i> 599 #9-#10 TWE: T 178-179
2. Generalize patterns by describing in words how to find the next term.	SE: 34-36 <i>Hands-On Lab</i> 37 TWE: T 35
3. Recognize and explain when numerical patterns are linear or nonlinear progressions; e.g., 1, 3, 5, 7... is linear and 1, 3, 4, 8, 16... is nonlinear.	Linear and nonlinear equations are covered in Lesson 4-6 page 181. See <i>Mathematics: Applications and Concepts Course 3</i> for a lesson on linear/nonlinear functions: Lesson 12-1 pages 560-563. (table page 562)
<i>Use Algebraic Representations</i>	
4. Create visual representations of equation-solving processes that model the use of inverse operations.	SE: 156-157 <i>Hands-On Lab</i> 154-155 <i>Hands-On Mini Lab</i> 160 TWE: DI 157
5. Represent linear equations by plotting points in the coordinate plane.	SE: 178-181 <i>Extra Practice Lesson 4-6</i> 573 #1-#2 TWE: T 178
6. Represent inequalities on a number line or a coordinate plane.	SE: 172-175, 187 #44-#53 <i>Extra Practice Lesson 4-5</i> 573 #1-#15 TWE: T 173
7. Justify that two forms of an algebraic expression are equivalent, and recognize when an expression is simplified; e.g., $4m = m + m + m + m$ or $a \cdot 5 + 4 = 5a + 4$.	SE: 30 eg. 1, 32 #18, 122 eg 7, 123 #46-#51
8. Use formulas in problem-solving situations.	SE: 140 #34, 272 #20-#23, 277 #23, 482 #22, 492 #20-22, 494-495 #26 & #27, 522 #18, 526-527 #26-#28, 534-535 #14-24, 540-541 #12-#21
9. Recognize a variety of uses for variables; e.g., placeholder for an unknown quantity in an equation, generalization for a pattern, formula.	SE: 18, 21, #43, 28 #18, 36 #27, 150-152 <i>Key Concept</i> 270, 271 TWE: B 18 DI 19
<i>Analyze Change</i>	
10. Analyze linear and simple nonlinear relationships to explain how a change in one variable results in the change of another.	SE: 182-183, 185 #24-#26

STANDARDS	PAGE REFERENCES
11. Use graphing calculators or computers to analyze change; e.g., distance-time relationships.	SE: 471 eg. 3 TWE: T4 Explains where to find activities with the graphing calculator
Data Analysis and Probability Standard	
<i>Data Collection</i>	
1. Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.	SE: 54-57, 58-59, 60-63, 76-79, 80-83, 85-89, 92-95, 97 #20-#23, 98 #24-#29 <i>Mixed Problem Solving</i> 597 #1-#5, #11-#18
2. Analyze how decisions about graphing affect the graphical representation; e.g., scale, size of classes in a histogram, number of categories in a circle graph.	SE: 60-61, 63 #14 & #17, 64, 86-89, 92-95, 98 #30-#31, 421 #16 <i>Extra Practice Lesson 2-8</i> 569 TWE: DI 85, 92 A 88 B 92 PS 99 T 93
<i>Statistical Methods</i>	
3. Analyze a set of data by using and comparing combinations of measures of center (mean, mode, median) and measures of spread (range, quartile, interquartile range), and describe how the inclusion or exclusion of outliers affects those measures.	SE: 64-68, 69-72, 97 #12-#19, 597 #6-#10 <i>Extra Practice Lesson 2-3</i> 567, <i>Lesson 2-4</i> 568 <i>Hands-On Lab</i> 73 TWE: T 65
4. Construct opposing arguments based on analysis of the same data, using different graphical representations.	TWE: DI 92
5. Compare data from two or more samples to determine how sample selection can influence results.	SE: <i>Hands-On Lab</i> 301, 344
6. Identify misuses of statistical data in articles, advertisements, and other media.	TWE: B 92
<i>Probability</i>	
7. Compute probabilities of compound events; e.g., multiple coin tosses or multiple rolls of number cubes, using such methods as organized lists, tree diagrams and area models.	SE: 374-377, 398-401, 404 #40-#43, 501-503, 506 #44 <i>Extra Practice Lesson 9-7</i> 586, <i>Lesson 11-8</i> 592 <i>Mixed Problem Solving</i> 604 #12, 606 #11 TWE: A 401 B 374, 398 T 502
8. Make predictions based on theoretical probabilities, design and conduct an experiment to test the predictions, compare actual results to predicted results, and explain differences.	SE: 393-396 <i>Extra Practice Lesson 9-6</i> 586 <i>Hands-On Lab</i> 397 TWE: A 395 T 394

Codes Used for TWE Pages

A	Assess
B	Bellringer
DI	Daily Intervention
P	Practice/Apply
PS	Portfolio Suggestion
T	Teach
TI	Tips for New Teachers