

**GLENCOE CORRELATION**  
**MATHMATTERS 2**  
**OHIO**  
**Mathematics Benchmarks and Indicators**  
**Grade Ten**

BENCHMARKS AND INDICATORS	PAGE REFERENCES
<b>Number, Number Sense and Operations Standard</b>	
<i>Number and Number Systems</i>	
1. Connect physical, verbal and symbolic representations of irrational numbers; e.g., construct $\sqrt{2}$ as a hypotenuse or on a number line.	SE: 52, 506-507 <i>Problem Solving Tip</i> 504 TWE: CE 505 LS 504 QA 54
<i>Meaning of Operations</i>	
2. Explain the meaning of the $n$ th root.	SE: 83-84, 86 <i>Review</i> 95 TWE: TT 83, 86
<i>Computation and Estimation</i>	
3. Use factorial notation and computations to represent and solve problem situations involving arrangements.	SE: 172-175, 178-180 <i>Review</i> 183 TWE: EL 179 TT 173 QA 174
4. Approximate the $n$ th root of a given number greater than zero between consecutive integers when $n$ is an integer; e.g., the 4 <sup>th</sup> root of 50 is between 2 and 3.	SE: 136, 505 <i>Cooperative Learning</i> 143 TWE: CE 137 QA 138
<b>Measurement Standard</b>	
<i>Use Measurement Techniques and Tools</i>	
1. Explain how a small error in measurement may lead to a large error in calculated results.	SE: <i>Cooperative Learning</i> 467 TWE: TT 503
2. Calculate relative error.	SE: 427, 434, 463, 508 TWE: CE 457 EL 434 TT 462
3. Explain the difference between absolute error and relative error in measurement.	This objective is covered briefly in <i>MathMatters 3</i> Lesson 5-1.
4. Give examples of how the same absolute error can be problematic in one situation but not in another; e.g., compare "accurate to the nearest foot" when measuring the height of a person versus when measuring the height of a mountain.	SE: 427, 455 #29, 459 #21, 487 #25-#27, 501 #33-#34
5. Determine the measures of central and inscribed angles and their associated major and minor arcs.	SE: 227-229, 232-233 <i>Review</i> 235 <i>Review and Practice Your Skills</i> 230 TWE: CE 227 EL 226, 228 TT 231

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<b>Geometry and Spatial Sense Standard</b>	
<i>Characteristics and Properties</i>	
1. Formally define and explain key aspects of geometric figures, including: <ul style="list-style-type: none"> <li>a. interior and exterior angles of polygons;</li> <li>b. segments related to triangles (median, altitude, midsegment);</li> <li>c. points of concurrency related to triangles (centroid, incenter, orthocenter, circumcenter);</li> <li>d. circles (radius, diameter, chord, circumference, major arc, minor arc, sector, segment, inscribed angle).</li> </ul>	SE: 202, 204, 206-209, 212-215, 216-219, 222-225, 226-229 TWE: CE 217 EL 214, 226 QA 208
<i>Spatial Relationships</i>	
2. Recognize and explain the necessity for certain terms to remain undefined, such as point, line and plane.	SE: 192, 202, 436-439 TWE: CE 437 EL 226, 436 LS 193 QA 194
3. Make, test and establish the validity of conjectures about geometric properties and relationships using counterexample, inductive and deductive reasoning, and paragraph or two-column proof, including: <ul style="list-style-type: none"> <li>a. prove the Pythagorean Theorem;</li> <li>b. prove theorems involving triangle similarity and congruence;</li> <li>c. prove theorems involving properties of lines, angles, triangles and quadrilaterals;</li> <li>d. test a conjecture using basic constructions made with a compass and straightedge or technology.</li> </ul>	SE: 474, 548-551 <i>Assessment 554</i> <i>Review 553</i> TWE: CE 549, 475 GS 226 LS 548 QA 550 TT 475
4. Construct right triangles, equilateral triangles, parallelograms, trapezoids, rectangles, rhombuses, squares and kites, using compass and straightedge or dynamic geometry software.	SE: 229, 232, 299, 303, 319, 439, 477, 497, 551 <i>Technology 237</i>
5. Construct congruent figures and similar figures using tools, such as compass, straightedge, and protractor or dynamic geometry software.	SE: 196-197, 199, 205, 212, 215, 477 TWE: CE 197 GS 212 TT 196
<i>Transformation and Symmetry</i>	
6. Identify the reflection and rotation symmetries of two- and three-dimensional figures.	SE: 308, 310-313, 497 <i>Extra Practice 634</i> <i>Review and Practice Your Skills 304-305, 314</i> TWE: CE 311 EL 306
7. Perform reflections and rotations using compass and straightedge constructions and dynamic geometry software.	SE: 296, 298, 300-302, 306-309 <i>Review and Practice Your Skills 314</i> TWE: EL 297, 307, 310

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8. Derive coordinate rules for translations, reflections and rotations of geometric figures in the coordinate plane.	SE: 297-298 <i>Assessment</i> 326 <i>Review</i> 324 <i>Review and Practice Your Skills</i> 305 TWE: QA 298
9. Show and describe the results of combinations of translations, reflections and rotations (compositions); e.g., perform compositions and specify the result of a composition as the outcome of a single motion, when applicable.	SE: 298-299, 302-303, 309, 311-313 TWE: QA 298, 302, 308, 312
<i>Visualization and Geometric Models</i>	
10. Solve problems involving chords, radii and arcs within the same circle.	SE: 226-229 <i>Review</i> 235 <i>Review and Practice Your Skills</i> 230 TWE: CE 227 EL 228
<b>Patterns, Functions and Algebra Standard</b>	
<i>Use Patterns, Relations and Functions</i>	
1. Define function formally and with $f(x)$ notation.	SE: 264-265, 267 #22, 274-275 TWE: GS 264 TT 265
2. Describe and compare characteristics of the following families of functions: square root, cubic, absolute value and basic trigonometric functions; e.g., general shape, possible number of roots, domain and range.	SE: 136-139, 267, 274-275, 498-501 <i>Review and Practice Your Skills</i> 272 TWE: CE 499
<i>Use Algebraic Representations</i>	
3. Solve equations and formulas for a specified variable; e.g., express the base of a triangle in terms of the area and height.	SE: 104-107, 108-111, 116-119, 268-271 <i>MathWorks</i> 113, 273 <i>Review and Practice Your Skills</i> 120-121 TWE: CE 105, 269 TT 105
4. Use algebraic representations and functions to describe and generalize geometric properties and relationships.	SE: 114, 118, 135, 452-455, 456-459, 474-477, 478-481, 484-487 <i>Assessment</i> 466 <i>Review</i> 464-467
5. Solve simple linear and nonlinear equations and inequalities having square roots as coefficients and solutions.	SE: 136-139, 484-487 <i>Assessment</i> 142 <i>Cooperative Learning</i> 143 <i>Review</i> 141 TWE: CE 137 EL 138 GS 136 LS 136 QA 138
6. Solve equations and inequalities having rational expressions as coefficients and solutions.	SE: 117-119, 132-135, 344-347, 348-351, 376-379, 380-383 TWE: CE 377, 382 EL 376

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7. Solve systems of linear inequalities.	SE: 362-365 <i>Review</i> 367 TWE: CE 363 QA 364 TT 362
8. Graph the quadratic relationship that defines circles.	This objective is covered briefly in <i>MathMatters 3</i> Lessons 13-1 and 13-7.
9. Recognize and explain that the slopes of parallel lines are equal and the slopes of perpendicular lines are negative reciprocals.	SE: 250 <i>Review and Practice Your Skills</i> 252 TWE: CE 249, 255
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions.	SE: 257, 260, 267, 269, 270, 274-275, 278 <i>MathWorks</i> 273
<b>Analyze Change</b>	
11. Solve real-world problems that can be modeled, using systems of linear equations and inequalities.	SE: 337, 340-341, 345, 347, 350-351, 362-365 <i>MathWorks</i> 343, 361
12. Describe the relationship between slope of a line through the origin and the tangent function of the angle created by the line and the positive x-axis.	TWE: TT 488
<b>Data Analysis and Probability Standard</b>	
<b>Data Collection</b>	
1. Describe measures of center and the range verbally, graphically and algebraically.	SE: 10-13 TWE: CE 11 EL 10, 11 QA 12
2. Represent and analyze bivariate data using appropriate graphical displays (scatterplots, parallel box-and-whisker plots, histograms with more than one set of data, tables, charts, spreadsheets) with and without technology.	SE: 16-19, 20-23, 29-31 <i>Review and Practice Your Skills</i> 24, 32-33 <i>Technology</i> 45 TWE: CE 17, 21
3. Display bivariate data where at least one variable is categorical.	SE: 16-19, 21-23, 30-31, 38-41 <i>Review</i> 42-43 <i>Review and Practice Your Skills</i> 24-25
4. Identify outliers on a data display; e.g., use interquartile range to identify outliers on a box-and-whisker plot.	SE: 29-31 <i>Mid-Chapter Quiz</i> 25 TWE: GS 10
<b>Statistical Methods</b>	
5. Provide examples and explain how a statistic may or may not be an attribute of the entire population; e.g., intentional or unintentional bias may be present.	SE: 6-9, 34-37 <i>Mid-Chapter Quiz</i> 25 <i>Review and Practice Your Skills</i> 14 TWE: CE 7, 35 EL 7 TT 6 QA 8, 36

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6. Interpret the relationship between two variables using multiple graphical displays and statistical measures; e.g., scatterplots, parallel box-and-whisker plots, and measures of center and spread.	SE: 16-19, 20-23, 26-27, 34-37 <i>Review</i> 42-43 <i>Review and Practice Your Skills</i> 24-25, 32-33 TWE: CE 21
<i>Probability</i>	
7. Model problems dealing with uncertainty with area models (geometric probability).	SE: 152-153 <i>Extra Practice Worksheet</i> 153 <i>Review and Practice Your Skills</i> 156-157 TWE: CE 151 EL 153
8. Differentiate and explain the relationship between the probability of an event and the odds of an event, and compute one given the other.	SE: 149, 152-153, 158-161, 164-165, 170-171 TWE: CE 155, 163 EL 163

### Codes Used for TWE Pages

CE	Chalkboard Examples
EL	Extending the Lesson
GS	Getting Started
LS	Learning Styles
QA	Quick Assessment
TT	Teaching Tip