



# MathMatters 2

An Integrated Program

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STANDARDS		PAGE REFERENCES
<b>Number, Number Sense and Operations Standard</b>		
<b>Number and Number Systems</b>		
1. Connect physical, verbal and symbolic representations of irrational numbers; e.g., construct $\sqrt{2}$ as a hypotenuse or on a number line.	<b>Student Edition:</b> 52, 103 #38-#45, 485 ex 2, 486 #9-#10, 487 #24	
<b>Meaning of Operations</b>		
2. Explain the meaning of the $n$ th root.	This standard can be met in Glencoe's <i>Advanced Mathematical Concepts: Precalculus with Applications</i> © 2006 on pages 695-703.	
<b>Computation and Estimation</b>		
3. Use factorial notation and computations to represent and solve problem situations involving arrangements.	<b>Student Edition:</b> 172-175, 176 #19-#32, 177 #42-#45, 178-181 <b>Annotated Teacher Edition:</b> CE 173, 179; ETL 179; QA 174, 180; TT 172	
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.	This standard can be met in Glencoe's <i>Advanced Mathematical Concepts: Precalculus with Applications</i> © 2006 on pages 695-703.	

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<b>Measurement Standard</b>		
<b>Use Measurement Techniques and Tools</b>		
1. Explain how a small error in measurement may lead to a large error in calculated results.	This standard can be met in Glencoe's <i>MathMatters 3</i> © 2006 on pages 202-205.	
2. Calculate relative error.	This standard can be met in Glencoe's <i>MathMatters 3</i> © 2006 on pages 202-205.	
3. Explain the difference between absolute error and relative error in measurement.	This standard can be met in Glencoe's <i>MathMatters 3</i> © 2006 on pages 202-205.	
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.	This standard can be met in Glencoe's <i>MathMatters 3</i> © 2006 on pages 202-205.	
5. Determine the measures of central and inscribed angles and their associated major and minor arcs.	<b>Student Edition:</b> 226-229, 230 #18, 236 #44-#45 <b>Annotated Teacher Edition:</b> CE 227; QA 228	
<b>Geometry and Spatial Sense Standard</b>		
<b>Characteristics and Properties</b>		
1. Formally define and explain key aspects of geometric figures, including: <ol style="list-style-type: none"> <li>interior and exterior angles of polygons;</li> <li>segments related to triangles (median, altitude, midsegment);</li> <li>points of concurrency related to triangles (centroid, incenter, orthocenter, circumcenter);</li> <li>circles (radius, diameter, chord, circumference, major arc, minor arc, sector, segment, inscribed angle).</li> </ol>	<b>Student Edition:</b> 192-195, 196 #1-#4, 200 #1-#12, 202 #1-#3, 206-209, 216-219, 222-225, 296-299, 300-303, 306-309 <b>Annotated Teacher Edition:</b> ETL 219; QA 194, 218; TT 207	
<b>Spatial Relationships</b>		
2. Recognize and explain the necessity for certain terms to remain undefined, such as point, line and plane.	<b>Student Edition:</b> 192, 193 ex 2	

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<p>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:</p> <ol style="list-style-type: none"> <li>prove the Pythagorean Theorem;</li> <li>prove theorems involving triangle similarity and congruence;</li> <li>prove theorems involving properties of lines, angles, triangles and quadrilaterals;</li> <li>test a conjecture using basic constructions made with a compass and straightedge or technology.</li> </ol>	<p><b>Student Edition:</b> 34-37, 44 #29-#30, 45 #7, 46 #7, 47 #25, 530 #c, 531 #1</p> <p><b>Annotated Teacher Edition:</b> AA 34; CE 35, 531; QA 36</p>
<p>4. Construct right triangles, equilateral triangles, parallelograms, trapezoids, rectangles, rhombuses, squares and kites, using compass and straightedge or dynamic geometry software.</p>	<p><b>Student Edition:</b> 212, 222</p>
<p>5. Construct congruent figures and similar figures using tools, such as compass, straightedge, and protractor or dynamic geometry software.</p>	<p><b>Student Edition:</b> 197 ex 2, 212</p>
<b>Transformation and Symmetry</b>	
<p>6. Identify the reflection and rotation symmetries of two- and three-dimensional figures.</p>	<p><b>Student Edition:</b> 310-313, 314 #8-#16, 315 #22-#24, 325 #22-#27, 327 #6-#7, 328 #12</p> <p><b>Annotated Teacher Edition:</b> CE 311; ETL 311, 312; QA 312</p>
<p>7. Perform reflections and rotations using compass and straightedge constructions and dynamic geometry software.</p>	<p><b>Student Edition:</b> 300</p>
<p>8. Derive coordinate rules for translations, reflections and rotations of geometric figures in the coordinate plane.</p>	<p><b>Student Edition:</b> 296-299, 300-303, 304 #13-#23, 305 #27-#32, 306-309</p> <p><b>Annotated Teacher Edition:</b> CE 301; ETL 301, 307; QA 302</p>
<p>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.</p>	<p><b>Annotated Teacher Edition:</b> ETL 307</p>

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<b>Visualization and Geometric Models</b>	
10. Solve problems involving chords, radii and arcs within the same circle.	<b>Student Edition:</b> 226-229, 230 #18, 236 #44-#45 <b>Annotated Teacher Edition:</b> CE 227; QA 228
<b>Patterns, Functions and Algebra Standard</b>	
<b>Use Patterns, Relations and Functions</b>	
1. Define function formally and with $f(x)$ notation.	<b>Student Edition:</b> 264-267, 272 #1-#7, 281 #25-#28, 287 #51-#53 <b>Annotated Teacher Edition:</b> CE 265; QA 266
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.	This standard can be met in Glencoe's <i>Algebra 2</i> © 2005 on pages 395-399.
<b>Use Algebraic Representations</b>	
3. Solve equations and formulas for a specified variable; e.g., express the base of a triangle in terms of the area and height.	<b>Student Edition:</b> 110 ex 3, 112 #48-#49, 113 #60-#63, 117 ex 3, 118 #34-#36, 119 #37 <b>Annotated Teacher Edition:</b> CE 109
4. Use algebraic representations and functions to describe and generalize geometric properties and relationships.	<b>Student Edition:</b> 334-337, 342 #1-#18, 343 #43-#45, 361 #27-#29, 366 #11-#13 <b>Annotated Teacher Edition:</b> CE 335; ETL 336; QA 336
5. Solve simple linear and nonlinear equations and inequalities having square roots as coefficients and solutions.	<b>Student Edition:</b> 136-139 <b>Annotated Teacher Edition:</b> CE 137
6. Solve equations and inequalities having rational expressions as coefficients and solutions.	<b>Student Edition:</b> 106 #18, 107 #22, 108 ex 1, 110 #31, 112 #29, 118 #26, 120 #19, 134 #29, 141 #26, 142 #46
7. Solve systems of linear inequalities.	<b>Student Edition:</b> 362-365, 368 #30-#40, 369 #10 <b>Annotated Teacher Edition:</b> CE 363; ETL 363; QA 364; TT 462

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8. Graph the quadratic relationship that defines circles.	This standard can be met in Glencoe's <i>MathMatters 3</i> © 2006 on pages 562-565.
9. Recognize and explain that the slopes of parallel lines are equal and the slopes of perpendicular lines are negative reciprocals.	<b>Student Edition:</b> 334-337, 342 #1-#18, 343 #43-#45, 361 #27-#29, 366 #11-#13 <b>Annotated Teacher Edition:</b> CE 335; ETL 336; QA 336
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions.	<b>Student Edition:</b> 20-23, 24 #10-#19, 43 #19-#21, 47 #22-#23 <b>Annotated Teacher Edition:</b> CE 21; DI 20; ETL 21; QA 22
<b>Analyze Change</b>	
11. Solve real-world problems that can be modeled, using systems of linear equations and inequalities.	<b>Student Edition:</b> 340 #7-#8, 345 ex 2, 346 #7, 347 #24, 350 ex 4, 351 #25, 352 #32, 353 #16, 364 #23-#25, 365 #27-#30
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.	This standard can be met during teacher/class discussion.
<b>Data Analysis and Probability Standard</b>	
<b>Data Collection</b>	
1. Describe measures of center and the range verbally, graphically and algebraically.	<b>Student Edition:</b> 10-13, 14 #9-#17, 15 #22-#24, 25 #4, 42 #13-#14 <b>Annotated Teacher Edition:</b> AA 10; CE 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.	<b>Student Edition:</b> 20-23, 24 #10-#19, 28-31, 32 #7-#18, 33 #19-#22, 43 #19-#21, 44 #26-#28 <b>Annotated Teacher Edition:</b> CE 21, 29; QA 30
3. Display bivariate data where at least one variable is categorical.	<b>Student Edition:</b> 16-19, 24 #1-#9, 45 #3-#5 <b>Annotated Teacher Edition:</b> CE 17; QA 18
4. Identify outliers on a data display; e.g., use interquartile range to identify outliers on a box-and-whisker plot.	<b>Student Edition:</b> 28-31 <b>Annotated Teacher Edition:</b> QA 30

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<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.	<p><b>Student Edition:</b> 6-9, 14 #1-#8, 15 #18-#21, 25 #1-#3, 42 #11-#12, 45 #1-#2, 46 #1</p> <p><b>Annotated Teacher Edition:</b> CE 7; ETL 7; QA 8; TT 6</p>
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.	<p><b>Student Edition:</b> 20-23, 24 #10-#19, 28-31, 32 #7-#18, 33 #19-#22, 43 #19-#21, 44 #26-#28</p> <p><b>Annotated Teacher Edition:</b> CE 21, 29; QA 30</p>
<b>Probability</b>	
7. Model problems dealing with uncertainty with area models (geometric probability).	<p><b>Student Edition:</b> 152 #5-#8, 153 #16-#19, 156 #1-#4, 157 #15-#17, 167 #24-#26, 185 #6</p> <p><b>Annotated Teacher Edition:</b> CE 151</p>
8. Differentiate and explain the relationship between the probability of an event and the odds of an event, and compute one given the other.	This standard can be met in Glencoe's <i>MathMatters 1</i> © 2006 on pages 436-439.