



# Algebra 2

© 2008

STANDARDS	PAGE REFERENCES
<b>Grade Eleven</b>	
<b>Number, Number Sense and Operations Standard</b>	
<i>Number and Number Systems</i>	
1. Determine what properties hold for matrix addition and matrix multiplication; e.g., use examples to show addition is commutative and when multiplication is not commutative.	<b>Student Edition:</b> 172, 173 #7, 180-181
2. Determine what properties hold for vector addition and multiplication, and for scalar multiplication.	<b>Student Edition:</b> 172 Also see Glencoe's <i>Advanced Mathematical Concepts: Precalculus with Applications</i> © 2006 Lessons 8-1, 8-2, 8-3, 8-5, 8-8
3. Represent complex numbers on the complex plane.	<b>Student Edition:</b> <i>Algebra Lab</i> 262

STANDARDS	PAGE REFERENCES
<i>Meaning of Operations</i>	
4. Use matrices to represent given information in a problem situation.	<p><b>Student Edition:</b>  162-166, 170-171 Example 3, 173 #5-#7,  174 #22-#24, 175 #39-#43, #47, 179 Example 3,  182 #10-#11, #28-#30, 183 #35-#39, #44, 185-191,  200 #44-#45, 207 #39-#40, 211-212 Example 3,  212 #8, 213 #22-#24, 216-221</p> <p><i>Mid-Chapter Quiz</i> 193</p> <p><i>Standardized Test Practice</i> 230 #1, #4, #5</p> <p><i>Study Guide and Review</i> 225-228</p>
5. Model, using the coordinate plane, vector addition and scalar multiplication.	<p><b>Student Edition:</b>  187 Example 3, 189 #16-#17, 190 #22-#24,  200 #44-#45</p>
<i>Computation and Estimation</i>	
6. Compute sums, differences and products of matrices using paper and pencil calculations for simple cases, and technology for more complicated cases.	<p><b>Student Edition:</b>  169-175, 177-183, 184 #47-#49, 185-191,  192 #49-#53, 200 #44-#48, 207 #39-#40, #45-#48,  208-214, 215 #57-#59, 218-219 Example 3,  219 #3, 220-221 #4-#7, #12-#31, #34, #36,  222 #40-#42</p> <p><i>Graphing Calculator Lab</i> 219</p> <p><i>Mid-Chapter Quiz</i> 193 #4-#6, #8-#9, #10-#14</p> <p><i>Practice Test</i> 229 #3-#5, #8-#13</p> <p><i>Study Guide and Review</i> 225 4-2, 226, 228</p>
7. Compute sums, differences, products and quotients of complex numbers.	<p><b>Student Edition:</b>  261-265, 275 #69-#70, 283 #59-#61, 406 #62-#64</p> <p><i>Mid-Chapter Quiz</i> 267 #19-#23</p> <p><i>Practice Test</i> 307 #18-#19</p> <p><i>Study Guide and Review</i> 304 5-4</p>
8. Use fractional and negative exponents as optional ways of representing and finding solutions for problem situations; e.g., $27^{2/3} = (27^{1/3})^2 = 9$ .	<p><b>Student Edition:</b>  312-313, 316 #6, #7, #9, #13, #23, #31-#34, #37,  317 #43, #48, 415-421, 427 #49-#51</p> <p><i>Study Guide and Review</i> 433 7-6</p>
9. Use vector addition and scalar multiplication to solve problems.	<p><b>Student Edition:</b>  171-172, 173 #8-#9, #11-#13, 174 #25-#28,  #31-#34, 175 #36-#38, 182 #31, 184 #47, #49,  187 Example 3, 189 #6-#7, #16-#17, 190 #22,  192 #52-#53</p> <p><i>Mid-Chapter Quiz</i> 193 #6</p> <p><i>Practice Test</i> 229 #3</p> <p><i>Study Guide and Review</i> 225 #20-#21</p>

STANDARDS		PAGE REFERENCES
<b>Measurement Standard</b>		
<i>Measurement Units</i>		
1. Determine the number of significant digits in a measurement.	This standard can be met during teacher/class discussion.	
2. Use radian and degree angle measures to solve problems and perform conversions as needed.	<b>Student Edition:</b> 768-774, 783 #56-#58 <i>Get Ready for the Next Lesson</i> 798 <i>Mid-Chapter Quiz</i> 784 #6-#13, 792 #45-#47 <i>Practice Test</i> 817 #5-#10 <i>Study Guide and Review</i> 813 13-2	
<i>Use Measurement Techniques and Tools</i>		
3. Derive a formula for the surface area of a cone as a function of its slant height and the circumference of its base.	<b>Student Edition:</b> 21 Example 6	
4. Calculate distances, areas, surface areas and volumes of composite three-dimensional objects to a specified number of significant digits.	<b>Student Edition:</b> 367 #42-#43 Calculating distances, areas, surface areas and volumes can be found on the following pages: <b>Student Edition:</b> 8 Example 2, 21 Example 6, 26 #79, 200 #49, 563-566, 789 Example 6 <i>Check Your Progress</i> 8 <i>Mixed Problem Solving</i> 926 #1, #3, #5 <i>Standardized Test Practice</i> 10 #40 <i>Study Guide and Review</i> 51 #39	
5. Solve real-world problems involving area, surface area, volume and density to a specified degree of precision.	<b>Student Edition:</b> 8 Example 2, 197 Example 4, 198 #26, 199 #41, 367 #42-#43, 372 #35-#37 <i>Algebra Lab</i> 703 <i>Mixed Problem Solving</i> 926 #3 <i>Standardized Test Practice</i> 10 #41 <i>Study Guide and Review</i> 51 #39, 378 #64	
<b>Geometry and Spatial Sense Standard</b>		
<i>Spatial Relationships</i>		
1. Use polar coordinates to specify locations on a plane.	See Glencoe's <i>Advanced Mathematical Concepts: Precalculus with Applications</i> © 2006 Lessons 9-1, 9-2, 9-3, 9-4	

STANDARDS	PAGE REFERENCES
<i>Transformations and Symmetry</i>	
2. Represent translations using vectors.	Transformations can be found on the following pages: <b>Student Edition:</b> 185-192, 286-287, 829-836 <i>Graphing Calculator Lab</i> 284-285, 829 <i>Study Guide and Review</i> 226 #27, 868 14-2
3. Describe multiplication of a vector and a scalar graphically and algebraically, and apply to problem situations.	See Glencoe's <i>Advanced Mathematical Concepts: Precalculus with Applications</i> © 2006 Lessons 8-1, 8-2, 8-3, 8-5, 8-8
4. Use trigonometric relationships to determine lengths and angle measures; i.e., Law of Sines and Law of Cosines.	<b>Student Edition:</b> 761-766, 774 #64-#67, 785-792, 793-798, 805 #45-#46, 808 Example 2, 809 #25, 811 #51-#52 <i>Mid-Chapter Quiz</i> 784 #1-#2, #5 <i>Practice Test</i> 817 #1-#4, #19-#20, #22, #25 <i>Standardized Test Practice</i> 811 #46, 818 #7 <i>Study Guide and Review</i> 814 #27, 13-4, 815 13-5
<i>Visualization and Geometric Models</i>	
5. Identify, sketch and classify the cross sections of three-dimensional objects.	<b>Student Edition:</b> 567-573, 598-602, 608 #53-#54 <i>Practice Test</i> 615 #7-#16 <i>Study Guide and Review</i> 613 10-6
<b>Patterns, Functions and Algebra Standard</b>	
<i>Use Patterns, Relations and Functions</i>	
1. Identify and describe problem situations involving an iterative process that can be represented as a recursive function; e.g., compound interest.	<b>Student Edition:</b> 504 #36-#38, 538-539 Example 5, 541 #43-#46, 658-662, 669 #46-#47 <i>Algebra Lab</i> 663 <i>Practice Test</i> 679 #15-#17 <i>Study Guide and Review</i> 677 11-6
2. Translate a recursive function into a closed form expression or formula for the $n$ th term to solve a problem situation involving an iterative process; e.g., find the value of an annuity after 7 years.	<b>Student Edition:</b> 504 #38, 538-539 Example 5, <i>Algebra Lab</i> 663 #3 <i>Study Guide and Review</i> 677 #43

STANDARDS	PAGE REFERENCES
3. Describe and compare the characteristics of the following families of functions: quadratics with complex roots, polynomials of any degree, logarithms, and rational functions; e.g., general shape, number of roots, domain and range, asymptotic behavior.	<b>Student Edition:</b> 280 Example 5b, 281 #23b-#24b, 286-292, 301 #52-#54, 333-337, 339-344, 362-368, 457-463, 471 #53-#55, 475-478, 516 #68-#69 <i>Graphing Calculator Lab</i> 284-285, 293, 464 <i>Mid-Chapter Quiz</i> 348 #17 <i>Practice Test</i> 379 #30-#31 <i>Study Guide and Review</i> 305 #44b, 306 5-7, 378 #53-#56, 492
4. Identify the maximum and minimum points of polynomial, rational and trigonometric functions graphically and with technology.	<b>Student Edition:</b> 138-144, 238-243, 251 #59, 258 #59, 340-341, 343 #5-#6, #11c-#18c, 344 #34-#37 <i>Graphing Calculator Lab</i> 342 <i>Mid-Chapter Quiz</i> 267 #4 <i>Practice Test</i> 307 #4-#6 <i>Study Guide and Review</i> 155 #28, 303 #14
5. Identify families of functions with graphs that have rotation symmetry or reflection symmetry about the $y$ -axis, $x$ -axis or $y = x$ .	<b>Student Edition:</b> <i>Geometry Software Lab</i> 511 <i>Graphing Calculator Lab</i> 97
<i>Use Algebraic Representations</i>	
6. Represent the inverse of a function symbolically and graphically as a reflection about $y = x$ .	<b>Student Edition:</b> 392-396, 401 #36-#38, 406 #61, 427 #55, 509, 537, 806 <i>Mid-Chapter Quiz</i> 407 #9-#12 <i>Practice Test</i> 435 #1-#2 <i>Study Guide and Review</i> 431 7-2 <i>Quick Check</i> 497 #6-#9
7. Model and solve problems with matrices and vectors.	<b>Student Edition:</b> 162-167, 169-176, 177-184, 185-192, 208-215, 216-222 <i>Graphing Calculator Lab</i> 223 <i>Mid-Chapter Quiz</i> 193 <i>Practice Test</i> 229 #1-#5, #8-#14, #18 <i>Standardized Test Practice</i> 230-231 #1, #3-#4 <i>Study Guide and Review</i> 225-226, 228
8. Solve equations involving radical expressions and complex roots.	<b>Student Edition:</b> 272 Example 6, 273 #10-#15, #28-#39, #50-#55, 364 Example 3, 366 #5-#8, 367 #23-#32, 422-426 <i>Graphing Calculator Lab</i> 428-429 <i>Practice Test</i> 435 #8-#13, #27-#28 <i>Study Guide and Review</i> 305 #42, 434

STANDARDS	PAGE REFERENCES
<p>9. Solve 3 by 3 systems of linear equations by elimination and using technology, and interpret graphically what the solution means (a point, line, plane, or no solution).</p>	<p><b>Student Edition:</b>  145-151, 167 #34-#36, 176 #56-#58  <i>Graphing Calculator Lab</i> 219, 223  <i>Practice Test</i> 157 #14-#16  <i>Study Guide and Review</i> 156  Solving 3 by 3 systems of linear equations using Cramer's Rule can be found on pages:  <b>Student Edition:</b>  204, 206 #18-#27</p>
<p>10. Describe the characteristics of the graphs of conic sections.</p>	<p><b>Student Edition:</b>  567, 568 Example 1, 571 #1, #7-#10, #24-#27, #34-#39, 574, 575 Example 1, 577 #1, #13-#14, 581, 582 Example 1, 586 #1, #9-#12, 590, 591 Example 1, 594 #1, 595 #8-#11  <i>Algebra Lab</i> 580  <i>Study Guide and Review</i> 610 #18-#21, 611 #28-#31, 612 #34-#36, #39-#42</p>
<p><i>Analyze Change</i></p>	
<p>11. Describe how a change in the value of a constant in an exponential, logarithmic or radical equation affects the graph of the equation.</p>	<p><b>Student Edition:</b>  505 #60, 516 #64  <i>Graphing Calculator</i> 505, 516  Describing how a change in the value of a constant in an absolute value graph can be found on the follow page:  <b>Student Edition:</b>  <i>Graphing Calculator Lab</i> 97</p>
<p><b>Data Analysis and Probability Standard</b></p>	
<p><i>Data Collection</i></p>	
<p>1. Design a statistical experiment, survey or study for a problem; collect data for the problem; and interpret the data with appropriate graphical displays, descriptive statistics, concepts of variability, causation, correlation and standard deviation.</p>	<p><b>Student Edition:</b>  688 #26  <i>Algebra Lab</i> 734, 740</p>
<p>2. Describe the role of randomization in a well-designed study, especially as compared to a convenience sample, and the generalization of results from each.</p>	<p>Random samples are discussed on the following pages:  <b>Student Edition:</b>  741, 743 #1-#2, #8-#11</p>

STANDARDS	PAGE REFERENCES
<i>Statistical Methods</i>	
3. Describe how a linear transformation of univariate data affects range, mean, mode and median.	Statistical measures of univariate data are found on the following pages: <b>Student Edition:</b> 717-723 <i>Study Guide and Review</i> 748 12-6
4. Create a scatterplot of bivariate data, identify trends, and find a function to model the data.	<b>Student Edition:</b> 86-91, 101 #54-#56, 105 #47-#49 <i>Graphing Calculator Lab</i> 92-94 <i>Practice Test</i> 111 #27-#29 <i>Study Guide and Review</i> 109
5. Use technology to find the Least Squares Regression Line, the regression coefficient, and the correlation coefficient for bivariate data with a linear trend, and interpret each of these statistics in the context of the problem situation.	Using technology to find a line of regression, and the correlation coefficient can be found on the following pages: <b>Student Edition:</b> <i>Graphing Calculator Lab</i> 92-94
6. Use technology to compute the standard deviation for a set of data, and interpret standard deviation in relation to the context or problem situation.	<b>Student Edition:</b> 718-722, 728 #32-#33 <i>Study Guide and Review</i> 748 12-6
7. Describe the standard normal curve and its general properties, and answer questions dealing with data assumed to be normal.	<b>Student Edition:</b> 724-728, 733 #30-#31, 739 #42-#44, 744 #34-#35 <i>Study Guide and Review</i> 748 12-7
8. Analyze and interpret univariate and bivariate data to identify patterns, note trends, draw conclusions, and make predictions.	<b>Student Edition:</b> 86-91, 101 #54-#56, 105 #47-#49 <i>Graphing Calculator Lab</i> 92-94 <i>Practice Test</i> 111 #27-#29 <i>Study Guide and Review</i> 109 2-5
9. Evaluate validity of results of a study based on characteristics of the study design, including sampling method, summary statistics and data analysis techniques.	<b>Student Edition:</b> <i>Algebra Lab</i> 734 #5

STANDARDS	PAGE REFERENCES
<i>Probability</i>	
<p>10. Understand and use the concept of random variable, and compute and interpret the expected value for a random variable in simple cases.</p>	<p><b>Student Edition:</b>  697-702, 709 #55-#56, 715 #52  <i>Mid-Chapter Quiz</i> 716 #9-#12  <i>Practice Test</i> 751 #10  <i>Standardized Test Practice</i> 752 #4  <i>Study Guide and Review</i> 746 12-3</p>
<p>11. Examine statements and decisions involving risk; e.g., insurance rates and medical decisions.</p>	<p><b>Student Edition:</b>  <i>Cross-Curricular Project</i> 204</p>