



Algebra 2

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STANDARDS	PAGE REFERENCES
Grades 9, 10, 11	
Algebra	
Understand the concept of function, and identify important features of functions and other relations using symbolic and graphical methods.	
9.2.1.1	
Understand the definition of a function. Use functional notation and evaluate a function at a given point in its domain.	<p>Student Edition: 60-63, 67 ex 2, 69 #20-#21, 385-387</p> <p>Teacher Wraparound Edition: A 101; AE 61, 67; FM 97, 385</p>
9.2.1.2	
Distinguish between functions and other relations defined symbolically, graphically or in tabular form.	<p>Student Edition: 58-63, 66, 391-395</p> <p><i>Graphing Calculator Lab</i> 78, 97</p> <p><i>Reading Math</i> 65</p> <p>Teacher Wraparound Edition: A 101; AE 60, 97; FM 60, 97</p>

STANDARDS	PAGE REFERENCES
<p>9.2.1.3</p> <p>Find the domain of a function defined symbolically, graphically or in a real-world context.</p>	<p>Student Edition: 59-63, 97, 239 ex 3, 385-386 <i>Study Tip</i> 95, 238</p> <p>Teacher Wraparound Edition: AE 59, 60, 239</p>
<p>9.2.1.4</p> <p>Obtain information and draw conclusions from graphs of functions and other relations.</p>	<p>Student Edition: 72 ex 2, 75 #25-#26, 81 ex 3, 83 #28-#30, 87, 89-90, 95-96 <i>Algebra Lab</i> 394 <i>Mid-Chapter Quiz</i> 85 #15-#16</p> <p>Teacher Wraparound Edition: AE 87</p>
<p>9.2.1.5</p> <p>Identify the vertex, line of symmetry and intercepts of the parabola corresponding to a quadratic function, using symbolic and graphical methods, when the function is expressed in the form $f(x) = ax^2 + bx + c$, in the form $f(x) = a(x - h)^2 + k$, or in factored form.</p>	<p>Student Edition: 237-238, 241 #1-#6, #12-#21, 243 #37-#44, 286-291 <i>Graphing Calculator Lab</i> 285</p> <p>Teacher Wraparound Edition: AE 237, 289; FM 238</p>
<p>9.2.1.6</p> <p>Identify intercepts, zeros, maxima, minima and intervals of increase and decrease from the graph of a function.</p>	<p>Student Edition: 238-240, 241 #7-#11, #22-#31, 292 #32-#36, #45-#55, 246-251 <i>Reading Math</i> 245</p> <p>Teacher Wraparound Edition: AE 239, 248; FM 248; I 239; PA 251</p>
<p>9.2.1.7</p> <p>Understand the concept of an asymptote and identify asymptotes for exponential functions and reciprocals of linear functions, using symbolic and graphical methods.</p>	<p>Student Edition: 457-463, 474 <i>Graphing Calculator Lab</i> 464, 499 #4 <i>Study Guide and Review</i> 491 8-3</p> <p>Teacher Wraparound Edition: AE 458, 459, 460; FM 459</p>

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9.2.1.8	
<p>Make qualitative statements about the rate of change of a function, based on its graph or table of values.</p>	<p>Student Edition: 71, 72 ex 2, 74 #6-#8, 75 #29, 549 #19-#20 <i>Get Ready</i> 544 <i>Graphing Calculator Lab</i> 551 Teacher Wraparound Edition: AE 72</p>
9.2.1.9	
<p>Determine how translations affect the symbolic and graphical forms of a function. Know how to use graphing technology to examine translations.</p>	<p>Student Edition: 287, 803-833 <i>Graphing Calculator Lab</i> 284-285, 293, 829 Teacher Wraparound Edition: A 285; AE 287; T 284</p>
<p>Recognize linear, quadratic, exponential and other common functions in real-world and mathematical situations; represent these functions with tables, verbal descriptions, symbols and graphs; solve problems involving these functions, and explain results in the original context.</p>	
9.2.2.1	
<p>Represent and solve problems in various contexts using linear and quadratic functions.</p>	<p>Student Edition: 67 ex 2, 68 #3-#4, 69 #18-#21, 70 #50-#52, 100 #41-#46, 239-240 ex 4, 242 #32-#36, #51-#55, 243 #56-#57, 248 ex 5, 250 #30, #44-#45 Teacher Wraparound Edition: AE 67, 248</p>
9.2.2.2	
<p>Represent and solve problems in various contexts using exponential functions, such as investment growth, depreciation and population growth.</p>	<p>Student Edition: 500-501 ex 3, 503 #10-#11, 504 #34-#38, 505 #51-#55, 544-549 <i>Graphing Calculator Lab</i> 518-519, 551 Teacher Wraparound Edition: AE 500, 545</p>
9.2.2.3	
<p>Sketch graphs of linear, quadratic and exponential functions, and translate between graphs, tables and symbolic representations. Know how to use graphing technology to graph these functions.</p>	<p>Student Edition: 97 ex 2, 98 ex 3, 99 #1-#8, #12, #14-#27, 236 ex 1, 290 #11-#12 <i>Graphing Calculator Lab</i> 48, 252, 293 Teacher Wraparound Edition: AE 96, 97, 98, 237, 238</p>

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<p data-bbox="277 296 362 323">9.2.2.4</p> <p data-bbox="188 344 769 464">Express the terms in a geometric sequence recursively and by giving an explicit (closed form) formula, and express the partial sums of a geometric series recursively.</p>	<p data-bbox="823 344 1029 371">Student Edition:</p> <p data-bbox="823 380 1256 407">636-641, 643-648, 350-655, 658-661</p> <p data-bbox="823 422 1195 449">Teacher Wraparound Edition:</p> <p data-bbox="823 457 1135 485">AE 637, 651, 660; FM 646</p>
<p data-bbox="277 506 362 533">9.2.2.5</p> <p data-bbox="188 554 786 737">Recognize and solve problems that can be modeled using finite geometric sequences and series, such as home mortgage and other compound interest examples. Know how to use spreadsheets and calculators to explore geometric sequences and series in various contexts.</p>	<p data-bbox="823 554 1029 581">Student Edition:</p> <p data-bbox="823 590 1321 653">639 #22-#23, 640 #45-#46, 643, 644 ex 1, 647 #20-#29, 648 #54, 659 ex 2</p> <p data-bbox="823 661 1166 688"><i>Graphing Calculator Lab</i> 642</p> <p data-bbox="823 697 1078 724"><i>Spreadsheet Lab</i> 657</p> <p data-bbox="823 739 1195 766">Teacher Wraparound Edition:</p> <p data-bbox="823 774 911 802">AE 659</p>
<p data-bbox="277 825 362 852">9.2.2.6</p> <p data-bbox="188 873 786 1073">Sketch the graphs of common non-linear functions such as $f(x)=\sqrt{x}$, $f(x)= x$, $f(x)=\frac{1}{x}$, $f(x)=x^3$, and translations of these functions, such as $f(x)=\sqrt{x-2}+4$. Know how to use graphing technology to graph these functions.</p>	<p data-bbox="823 873 1029 900">Student Edition:</p> <p data-bbox="823 909 1425 1003">97 ex 2, 99 #5-#6, #20-#25, 100 #35-#36, 337 #50, 339 ex 1, 341 ex 3, 398 ex 1, 399 ex 3, 400 #24-#29, 476 #7-#9, #16-#23</p> <p data-bbox="823 1012 1195 1039">Teacher Wraparound Edition:</p> <p data-bbox="823 1047 1179 1075">AE 97, 103, 341, 399; GP 333</p>
<p data-bbox="277 1098 1365 1161">Generate equivalent algebraic expressions involving polynomials and radicals; use algebraic properties to evaluate expressions.</p>	
<p data-bbox="277 1182 362 1209">9.2.3.1</p> <p data-bbox="188 1230 776 1314">Evaluate polynomial and rational expressions and expressions containing radicals and absolute values at specified points in their domains.</p>	<p data-bbox="823 1230 1029 1257">Student Edition:</p> <p data-bbox="823 1266 1146 1293">365-367, 422-427, 442-449</p> <p data-bbox="823 1302 1338 1362"><i>Graphing Calculator Lab</i> 428-429, 479-485, 487-488</p> <p data-bbox="823 1371 1195 1398">Teacher Wraparound Edition:</p> <p data-bbox="823 1407 1243 1434">AE 364, 423, 424, 443-445; PA 449</p>
<p data-bbox="277 1455 362 1482">9.2.3.2</p> <p data-bbox="188 1503 753 1587">Add, subtract and multiply polynomials; divide a polynomial by a polynomial of equal or lower degree.</p>	<p data-bbox="823 1503 1029 1530">Student Edition:</p> <p data-bbox="823 1539 1146 1566">320-323, 325-329, 356-361</p> <p data-bbox="823 1575 1016 1602"><i>Algebra Lab</i> 321</p> <p data-bbox="823 1617 1195 1644">Teacher Wraparound Edition:</p> <p data-bbox="823 1652 1078 1680">AE321, 326-327, 358</p>

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<p data-bbox="277 296 362 323">9.2.3.3</p> <p data-bbox="188 344 737 432">Factor common monomial factors from polynomials, factor quadratic polynomials, and factor the difference of two squares.</p>	<p data-bbox="824 344 1029 371">Student Edition:</p> <p data-bbox="824 382 1143 409">254-258, 349-355, 357-361</p> <p data-bbox="824 420 1195 447">Teacher Wraparound Edition:</p> <p data-bbox="824 457 1205 485">AE 254, 255, 350, 351, 352, 358</p>
<p data-bbox="277 506 362 533">9.2.3.4</p> <p data-bbox="188 554 683 615">Add, subtract, multiply, divide and simplify algebraic fractions.</p>	<p data-bbox="824 554 1029 581">Student Edition:</p> <p data-bbox="824 592 1382 653">418 ex 6, 419 #12, #15-#16, 420 #31-#32, #40-#42, 349-#50, 444 ex 4, 445-448, 451 ex 3</p> <p data-bbox="824 663 1195 690">Teacher Wraparound Edition:</p> <p data-bbox="824 701 1024 728">AE 418, 446, 451</p>
<p data-bbox="277 747 362 774">9.2.3.5</p> <p data-bbox="188 795 797 919">Check whether a given complex number is a solution of a quadratic equation by substituting it for the variable and evaluating the expression, using arithmetic with complex numbers.</p>	<p data-bbox="824 795 1029 823">Student Edition:</p> <p data-bbox="824 833 1430 894">272 ex 6, 273 #36-#39, 278-279 ex 4, 281 #23-#24, 282 #51, 283 #35-#36, #39</p> <p data-bbox="824 905 1195 932">Teacher Wraparound Edition:</p> <p data-bbox="824 942 1029 970">AE 272, 278, 280</p>
<p data-bbox="277 989 362 1016">9.2.3.6</p> <p data-bbox="188 1037 797 1136">Apply the properties of positive and negative rational exponents to generate equivalent algebraic expressions, including those involving n^{th} roots.</p>	<p data-bbox="824 1037 1029 1064">Student Edition:</p> <p data-bbox="824 1075 1081 1102">415-421, 427 #49-#51</p> <p data-bbox="824 1113 1214 1140"><i>Study Guide and Review</i> 433 7-6</p> <p data-bbox="824 1150 1195 1178">Teacher Wraparound Edition:</p> <p data-bbox="824 1188 1235 1215">AE 416, 417, 418; FM 416; PA 417</p>
<p data-bbox="277 1230 362 1257">9.2.3.7</p> <p data-bbox="188 1278 786 1503">Justify steps in generating equivalent expressions by identifying the properties used. Use substitution to check the equality of expressions for some particular values of the variables; recognize that checking with substitution does not guarantee equality of expressions for all values of the variables.</p>	<p data-bbox="824 1278 1029 1306">Student Edition:</p> <p data-bbox="824 1316 1403 1377">123-124, 127 #1-#4, 312-#17, 148-150, 356-357, 537 ex 3, 540 #25-#32</p> <p data-bbox="824 1388 1195 1415">Teacher Wraparound Edition:</p> <p data-bbox="824 1425 1073 1453">AE 124, 537; FM 357</p>

STANDARDS	PAGE REFERENCES
<p>Represent real-world and mathematical situations using equations and inequalities involving linear, quadratic, exponential, and nth root functions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.</p>	
<p>9.2.4.1</p>	
<p>Represent relationships in various contexts using quadratic equations and inequalities. Solve quadratic equations and inequalities by appropriate methods including factoring, completing the square, graphing and the quadratic formula. Find non-real complex roots when they exist. Recognize that a particular solution may not be applicable in the original context. Know how to use calculators, graphing utilities or other technology to solve quadratic equations and inequalities.</p>	<p>Student Edition: 248 ex 5, 250, 257, 272 #5-#7, 274, 281-282, 297 ex 4 <i>Graphing Calculator Lab</i> 252, 284-285 Teacher Wraparound Edition: AE 248; DI 288</p>
<p>9.2.4.2</p>	
<p>Represent relationships in various contexts using equations involving exponential functions; solve these equations graphically or numerically. Know how to use calculators, graphing utilities or other technology to solve these equations</p>	<p>Student Edition: 500-501 ex 3, 503 #10-#11, 504 #36-#38, 505 #51-#55, 509 <i>Graphing Calculator Lab</i> 499, 507-508 Teacher Wraparound Edition: AE 500</p>
<p>9.2.4.3</p>	
<p>Recognize that to solve certain equations, number systems need to be extended from whole numbers to integers, from integers to rational numbers, from rational numbers to real numbers, and from real numbers to complex numbers. In particular, non-real complex numbers are needed to solve some quadratic equations with real coefficients.</p>	<p>Student Edition: 272 ex 6, 273 #36-#39, 278-279 ex 4, 281 #23-#24, 282 #51, 283 #35-#36, #39 Teacher Wraparound Edition: AE 272, 278, 280</p>
<p>9.2.4.4</p>	
<p>Represent relationships in various contexts using systems of linear inequalities; solve them graphically. Indicate which parts of the boundary are included in and excluded from the solution set using solid and dotted lines.</p>	<p>Student Edition: 130-135, 144 #46-#47, 152 #36-#38 <i>Graphing Calculator Lab</i> 136 <i>Study Guide and Review</i> 155 3-3 Teacher Wraparound Edition: AE 139, 140</p>

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<p>9.2.4.5</p> <p>Solve linear programming problems in two variables using graphical methods.</p>	<p>Student Edition: 138-144, 152 #35, 164 337, 200 349 <i>Study Guide and Review</i> 155 3-4</p> <p>Teacher Wraparound Edition: AE 139, 140</p>
<p>9.2.4.6</p> <p>Represent relationships in various contexts using absolute value inequalities in two variables; solve them graphically.</p>	<p>Student Edition: 102-105, 122 348, 129 #55-#57 <i>Get Ready</i> 115 <i>Study Guide and Review</i> 1102-7</p> <p>Teacher Wraparound Edition: A 105; AE 103; FM 103; T 102</p>
<p>9.2.4.7</p> <p>Solve equations that contain radical expressions. Recognize that extraneous solutions may arise when using symbolic methods.</p>	<p>Student Edition: 403 ex 3, 405 #12, #49-#50, 412 #7-#8, 413 #54-#57, 422-427 <i>Graphing Calculator Lab</i> 428-429 <i>Mid-Chapter Quiz</i> 407 #15-#19, #24</p> <p>Teacher Wraparound Edition: AE 404, 423</p>
<p>9.2.4.8</p> <p>Assess the reasonableness of a solution in its given context and compare the solution to appropriate graphical or numerical estimates; interpret a solution in the original context.</p>	<p>Student Edition: 132 ex 4, 149 ex 4, 203b, 239-240, 248-250, 297 ex 4, 424 ex 3, 467-468 ex 4 <i>Graphing Calculator Lab</i> 252 #2-#3</p> <p>Teacher Wraparound Edition: AE 248</p>