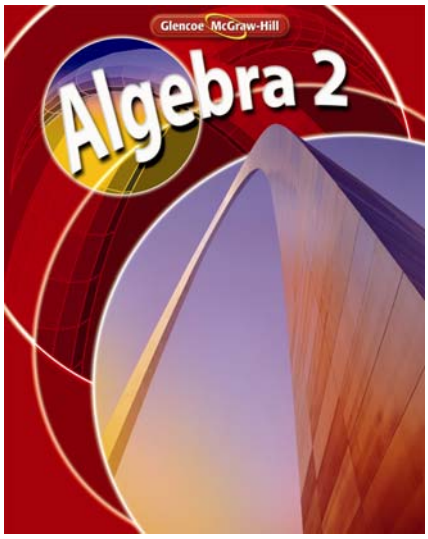
Glencoe

Intermediate Algebra

Utah



Algebra 2

STANDARDS	PAGE REFERENCES
Standard 1: Students will acquire number sense and perform operations with real and complex numbers.	
Objective 1: Compute fluently and make reasonable estimates.	
a. Simplify numerical expressions with **rational exponents**.	**Student Edition:** 415-421, 427 #49-#51 *Foldables* 430 *Study Guide and Review* 433 7-6 **Teacher Wraparound Edition** A 421; AE 416-418; FC 416; I 416
b. Add, subtract, and multiply complex numbers.	**Student Edition:** 262 Example 6, 263 Example 8, 264 #16-#21, #34-#41, 265 #51-#65 *Algebra Lab* 262 *Study Guide and Review* 304 5-4 **Teacher Wraparound Edition** AE 261-263
c. Add, subtract, and multiply matrices using paper and pencil for simple cases and technology for more complicated cases.	**Student Edition:** 169-175, 177-184, 185-188, 192 #52-#53 *Graphing Calculator Lab* 172 *Study Guide and Review* 225 4-2, 226 4-3 **Teacher Wraparound Edition** AE 170-172, 180; DI 172; I 175

Codes used for Teacher Wraparound Edition pages are the initial caps of headings on that page.

STANDARDS	PAGE REFERENCES
d. Find the multiplicative inverse of a matrix using paper and pencil for a 2 x 2 and technology for larger matrices.	**Student Edition:** 208-214, 218-219 Example 3, 222 #40-#42 *Study Guide and Review* 228 4-7 **Teacher Wraparound Edition** AE 209-211; PA 211
Objective 2: Represent complex numbers in a variety of ways.	
a. Extend the number system to include **complex numbers** in the form a + bi.	**Student Edition:** 261-266, 272 Example 6, 278-279 Example 4, 362-363, 365-366 Example 3-Example 4 *Algebra Lab* 262 *Study Guide and Review* 304 5-4 **Teacher Wraparound Edition** A 267; AE 261-263; FC 263
b. Identify the need for the square root of a negative number and define the **imaginary number** $i = \sqrt{-1}$.	**Student Edition:** 259-261, 265 #74, 272 Example 6 *Foldables* 302 **Teacher Wraparound Edition** DI 260; FC 263; T 259
c. Simplify expressions involving **radical expressions** including square roots of negative numbers.	**Student Edition:** 422-427 *Graphing Calculator Lab* 428-429 *Study Guide and Review* 434 7-6 **Teacher Wraparound Edition** A 427; AE 423-424; FC 423; I 424
Objective 3: Identify relationships among real numbers and operations involving these numbers.	
a. Identify matrices that can be added, subtracted, or multiplied.	**Student Edition:** 169-175, 177-184, 185-188, 192 #52-#53 *Graphing Calculator Lab* 172 *Study Guide and Review* 225 4-2, 226 4-3 **Teacher Wraparound Edition** AE 170-172, 180; DI 172; I 175
b. Demonstrate that **matrix multiplication** is not **commutative**.	**Student Edition:** 180-181 Example 5, 182 #12 **Teacher Wraparound Edition** MP 180

STANDARDS	PAGE REFERENCES
c. Identify **additive** and **multiplicative identities** and **inverses** of a matrix when they exist.	**Student Edition:** 172, 208-214 *Foldables* 224 *Study Guide and Review* 228 4-7 *Study Tip* 218 **Teacher Wraparound Edition** DI 210; FC 209
Standard 2: Students will represent and analyze mathematical situations and properties using patterns, relations, functions, and algebraic symbols.	
Objective 1: Use patterns, relations, and functions to represent mathematical situations.	
a. Compare and contrast relations and functions.	**Student Edition:** 58-64, 70 #61-#62, 95-98 *Foldables* 106 *Study Guide and Review* 107 2-1 **Teacher Wraparound Edition** AE 60; FC 59, 60; GR 59; I 59
b. Identify the domain and range of the absolute value, quadratic, radical, sine, and cosine functions.	**Student Edition:** 97 Example 2, 99 #20-#25, 100 #35-#36, 239 Example 3c, 241 #7-#10, #22-#32, 242 #45-#50, 406 #58-#60, 760, 807 *Graphing Calculator Lab* 97 *Study Tip* 97 **Teacher Wraparound Edition** AE 97; FC 97
c. Use function notation.	**Student Edition:** 61, 63 #35-#42, #54, 66-67 Example 1-Example 2, 70 #54, 77 #60-#63, 95-100 *Graphing Calculator Lab* 78 **Teacher Wraparound Edition** AE 67, 97
d. Find the compositions or combinations of two simple functions.	**Student Edition:** 385-390, 401 #39-#41, 511 *Mid-Chapter Quiz* 407 #1-#6 *Study Tip* 393 **Teacher Wraparound Edition** A 396; AE 386-387; EA 390; FC 385; I 393

STANDARDS	PAGE REFERENCES
e. Find the inverse of a function by interchanging the values of domain and range, reflecting across the line y = x, or by using algebra.	**Student Edition:** 391-395, 401 #36-#38, 406 #61 *Algebra Lab* 394 *Mid-Chapter Quiz* 407 #9-#12 **Teacher Wraparound Edition** A 396; AE 392-393; DI 392
f. Relate the sine, cosine, tangent, cosecant, secant, and cotangent to the unit circle.	**Student Edition:** 769, 799-800, 803 #1-#2, #7-#12 **Teacher Wraparound Edition** A 805; AE 800
g. Express angle measure in degrees or radians when given the trigonometric value.	**Student Edition:** 761-766, 768-773, 776-783, 792 #42-#47 *Algebra Lab* 775 *Study Guide and Review* 813 13-2 **Teacher Wraparound Edition** AE 761-764, 769-771, 777-778; FC 771
Objective 2: Evaluate, solve, and analyze mathematical situations using algebraic properties and symbols.	
a. Solve quadratic equations.	**Student Edition:** 246-251, 255-258, 260-261 Example 4, 264 #11-#12, 277-282 **Teacher Wraparound Edition** AE 247-248, 255, 261, 277-278, 280; FC 248, 255; I 255
b. Solve first-degree absolute value equations.	**Student Edition:** 28-31, 39 #62-#64, 48 #59-#62 *Study Guide and Review* 51 1-4 **Teacher Wraparound Edition** AE 28-29; PA 251
c. Solve radical equations including those with **extraneous** roots.	**Student Edition:** 422-427 *Graphing Calculator Lab* 428-429 *Study Guide and Review* 434 7-7 **Teacher Wraparound Edition** AE 423-424; FC 423; PA 427
d. Solve single-variable quadratic and absolute value inequalities.	**Student Edition:** 43-48, 103 Example 3, 295-300 *Study Guide and Review* 52 1-5, 306 5-8 **Teacher Wraparound Edition** AE 44, 103 #3, 296-297; PA 44

STANDARDS	PAGE REFERENCES
e. Write a quadratic equation when given the **rational roots** or **zeroes** of the function.	**Student Edition:** 246, 253 Example 1, 256 #1-#3, #14-#26, 257 #43-#46, 266 #80-#81 *Mid-Chapter Quiz* 267 #16 *Study Tip* 253 **Teacher Wraparound Edition** AE 254 #1
f. Solve systems of equations with no more than three variables using technology.	Technology can be used with the following examples. **Student Edition:** 116-121, 123-129, 145-151, 216-221 *Graphing Calculator Lab* 223 **Teacher Wraparound Edition** AE 117-119, 124-126, 146-149, 217-218; FC 118
g. Solve and graph systems of linear inequalities.	**Student Edition:** 130-135, 138-143 *Graphing Calculator Lab* 136 **Teacher Wraparound Edition** AE 131-132, 139; PA 122
h. Add, subtract, multiply, and divide simple **rational expressions** and solve simple **rational equations.**	**Student Edition:** 444-448, 451-456, 463 #57-#59, 471 #56-#58 *Study Guide and Review* 489 **Teacher Wraparound Edition** AE 444-446, 451-453; I 444; PA 456
i. Recognize that a^{-n} is defined as the reciprocal of a^n, i.e., $a^{-n} = -1/a^n$ if $a \neq 0$.	Introduction of a^n and the definition of the n^{th} root is on page 402. The reciprocal of a^n is not in this text. The use of other reciprocals are found in the following examples. **Student Edition:** 73-74, 444-446
j. Recognize that rational exponents are used to represent radicals, i.e., $a^{p/q} = q\sqrt{a^p} = (q\sqrt{a})^p$ if $a > 0$	**Student Edition:** 415-421 *Study Guide and Review* 433 7-6 **Teacher Wraparound Edition** AE 416-418; I 416; PE 417
k. Represent intervals with correct symbolic notation; e.g., $a < x < b$, (a, b), [a, b].	**Student Edition:** 41-47, 424, 426 #31-#38 *Graphing Calculator Lab* 429 *Reading Math* 40, 43 **Teacher Wraparound Edition** AE 42-44, 424

STANDARDS	PAGE REFERENCES
Objective 3: Represent quantitative relationships using mathematical models and symbols.	
a. Interpret rates of change by analyzing graphical and numerical data for quadratic and radical functions.	**Student Edition:** 71, 426 #39 *Graphing Calculator Lab* 252, 428-429
b. Find the **vertex**, maximum or minimum values, **intercepts**, and **axis of symmetry** of a quadratic or absolute value function, algebraically, graphically, and numerically.	**Student Edition:** 97 Example 2, 237-243, 251 #52-#54, 253, 286-291, 306 *Graphing Calculator Lab* 293 **Teacher Wraparound Edition** AE 237, 239; DI 240; I 239
c. Write the equation of a **parabola** in the form $y = a(x - h)^2 + k$ and a circle in the form $y = a(x - h)^2 + (y - k)^2 = r^2$ by completing the square.	**Student Edition:** 567-573, 574-579, 598, 600 #9, #11, #14-#17, 601 #34, #38 *Foldables* 609 *Study Guide and Review* 611 **Teacher Wraparound Edition** AE 571 #4a, 575; FC 575; PA 576
Standard 3: Students will solve problems using spatial and logical reasoning, applications of geometric principles, and modeling.	
Objective 1: Specify locations and describe spatial relationships using coordinate geometry.	
a. Sketch the graph of a quadratic and absolute value function.	**Student Edition:** 97 Example 2, 99 #5-#6, #20-#25, 100 #35-#36, #49, 105 #45-#46, 240 Example 4b, 241 #12-#21, 246-251 *Graphing Calculator Lab* 97 **Teacher Wraparound Edition** AE 97, 236-238, 247-248
b. Sketch the solutions of absolute value and quadratic inequalities of one variable on a number line.	**Student Edition:** 297-298, 424 Example 3 *Study Tip* 297 **Teacher Wraparound Edition** AE 297 #5
c. Sketch the solutions of absolute value and quadratic inequalities of two variables on a Cartesian coordinate system.	**Student Edition:** 103 Example 3, 104 #5-#6, #20-#21, #30-#34, 105 #40, 294-300 *Study Guide and Review* 306 5-8 **Teacher Wraparound Edition** AE 103, 295-297; DI 297; FC 296

STANDARDS	PAGE REFERENCES
d. Sketch the graph of a square root function.	**Student Edition:** 398-401, 476 #22 *Study Guide and Review* 432 7-3 **Teacher Wraparound Edition** AE 398-399; FC 399
e. Write an equation of a parabola in the form $y = a(x - h)^2 + k$ when given a graph.	**Student Edition:** 572 #20 **Teacher Wraparound Edition** PA 573
f. Graph sine and cosine functions.	**Student Edition:** 802 Example 3, 803 #6, 825-827, 830-835 *Graphing Calculator Lab* 824 **Teacher Wraparound Edition** AE 802 #3b, 825-826, 831-833; DI 833
g. Perform the transformations of stretching, shifting, and reflecting the graphs of linear, absolute value, quadratic, and radical functions.	**Student Edition:** 97 Example 2 *Graphing Calculator Lab* 97, 284-285, 428-429 **Teacher Wraparound Edition** AE 97, 385
h. Perform transformation on the sine and cosine functions involving **amplitude**, **period**, **phase shift**, vertical shift, and reflections.	**Student Edition:** 801-805, 823-827, 830-836 *Graphing Calculator Lab* 829 **Teacher Wraparound Edition** AE 802, 825; PA 805
Objective 2: Solve problems using visualization, spatial reasoning, and geometric modeling.	
a. Solve problems involving absolute value and quadratic functions algebraically and graphically.	**Student Edition:** 28-31, 39 #62-#64, 48 #59-#62, 246-251, 255-258, 260-261 Example 4, 264 #11-#12, 277-282 *Study Guide and Review* 51 1-4 **Teacher Wraparound Edition** AE 247-248, 255, 261, 277-278, 280; FC 248, 255; I 255
b. Solve problems using graphs of sine and cosine functions.	**Student Edition:** 802 Example 3, 803 #6, 825-827, 830-836 *Graphing Calculator Lab* 824, 829 **Teacher Wraparound Edition** AE 802 #3b, 825-826, 831-833; DI 833

STANDARDS	PAGE REFERENCES
Standard 4: Students will understand and apply measurement tools, formulas, and techniques.	
Objective 1: Understand measurable attributes of objects and the units, systems, and processes of measurement.	
a. Convert angle measurements between **radians** and degrees.	**Student Edition:** 761-766, 768-773, 776-783, 792 #42-#47 *Algebra Lab* 775 *Study Guide and Review* 813 13-2 **Teacher Wraparound Edition** AE 761-764, 769-771, 777-778; FC 771
b. Calculate the exact values of the sine, cosine, and tangent functions for the special angles of the unit circle.	**Student Edition:** 800, 801 Example 2, 803 #3-#4, #13-#18, 804 #25-#30, 811 #48-#50 *Graphing Calculator Lab* 800 *Study Guide and Review* 816 13-6 **Teacher Wraparound Edition** AE 801
Objective 2: Determine measurements using appropriate techniques, tools, and formulas.	
a. Find the length of an **arc** using radian measure.	**Student Edition:** 768
b. Find the area of a **sector** in a circle using radian measure.	**Student Edition:** 772 #34-#35, 773 #56
Standard 5: Students will draw conclusions using concepts of probability after collecting, organizing, and analyzing a data set.	
Objective 1: Formulate and answer questions by collecting, organizing, and analyzing data.	
a. Determine the quadratic regression equation for a given set of **bivariate data** using technology.	**Student Edition:** 290 #11-#12 *Graphing Calculator Lab* 252, 293
b. Analyze the meaning of the maximum or minimum and intercepts of the regression equation as they relate to a given set of bivariate data.	**Student Edition:** *Graphing Calculator Lab* 92-94, 252
c. Make predictions and estimations and determine their reasonableness using a regression equation.	**Student Edition:** 87-90 *Algebra Lab* 88 **Teacher Wraparound Edition** AE 88

STANDARDS	PAGE REFERENCES
Objective 2: Apply basic concepts of probability.	
a. Identify the difference between a permutation and a combination.	**Student Edition:** 690-692, 693 #5-#8, #21-#25, 702 #41-#43 *Reading Math* 696 *Study Tip* 711 **Teacher Wraparound Edition** FC 692
b. Calculate a probability using the Fundamental Counting Principle.	The Fundamental Counting Principle can be used with all the following examples. **Student Edition:** 704-709, 712-714 *Study Tip* 704 **Teacher Wraparound Edition** AE 712; FC 712
c. Calculate simple combinations and permutations of *n* objects taken *r* at a time.	**Student Edition:** 690-694, 697-699, 702 #41-#44 *Study Guide and Review* 746 12-2 **Teacher Wraparound Edition** AE 691-692