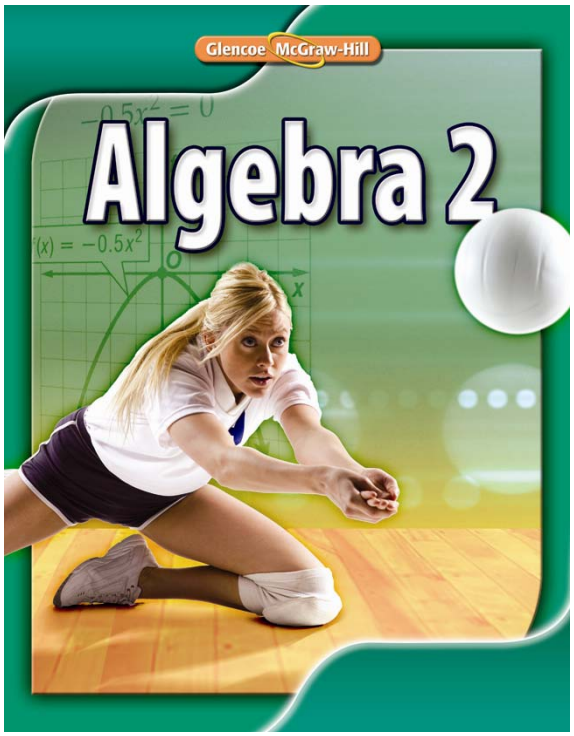
Glencoe

Merit Curriculum
Course/Credit Requirements
Algebra II



Algebra 2

	STANDARDS	PAGE REFERENCES
	CONTENT EXPECTATIONS FOR ALGEBRA II	
	STANDARD L1: REASONING ABOUT NUMBERS, SYSTEMS, AND QUANTITATIVE SITUATIONS	
	L1.2 Representations and Relationships	
L1.2.1	Use mathematical symbols to represent quantitative relationships and situations.	**Student Edition:** 5-10, 17 #67, 21 ex 7, 22 #21, 26 #5, 33-39, 40, 41-48 **Teacher Edition:** A 48; AE 6, 7, 21, 34, 35, 36, 42, 43, 44; DI 10, 39; F 43
	L1.3 Counting and Probabilistic Reasoning	
L1.3.1	Describe, explain, and apply various counting techniques; relate combinations to Pascal's triangle; know when to use each technique.	**Student Edition:** P3 #24, P9-P11, P12-P14, P19 #24, 726 **Teacher Edition:** A P11, P14, 726; AE P9, P10, P12, P13, P14; T 726; TT 726; TWT P10, P13; WO P10, P13

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

STANDARDS		PAGE REFERENCES
STANDARD L2: CALCULATION, ALGORITHMS, AND ESTIMATION		
L2.1 Calculation Using Real and Complex Numbers		
L2.1.3	Explain the exponential relationship between a number and its base 10 logarithm, and use it to relate rules of logarithms to those of exponents in expressions involving numbers.	**Student Edition:** 492-499, 507 #49-#54, 515 #76-#78, 542 #25-#30, 545 #1-#2 **Teacher Edition:** A 499; AE 493, 494, 495; DI 493, 499; F494; TWT 493
L2.1.5	Add, subtract, and multiply complex numbers; use conjugates to simplify quotients of complex numbers.	**Student Edition:** 276-282, 283 #19-#22, 290 #67-#69, 300 #56-#58, 322 #31-#33, 325 #16-#17, 329 #10 **Teacher Edition:** A 282; AE 277, 278, 279; F 279; TWT 279; WO 278
L2.2 Sequences and Iteration		
L2.2.1	Find the *n*th term in arithmetic, geometric, or other simple sequences.	**Student Edition:** 682 ex 2-ex 3, 683 ex 5, 685 #5-#8, 686 #39-#44, 687 #64, 688 ex 1, 689 ex 2, 690 ex 5, 692 #1-#2, 693 #50-#55, 696 ex 1, 697 ex 2, 699 ex 6, 700 #18-#21, 713 #11-#12 *Key Concept* 688 **Teacher Edition:** A 687; AE 682, 683, 689, 690, 697, 699
L2.2.2	Compute sums of finite arithmetic and geometric sequences.	**Student Edition:** 690 ex 4, 691 ex 6, 692 #7-#10, 693 #39-#48, 694 #71, 698 ex 4, 699 #11-#12, 700 #42-#45, 713 #15-#16, 734 #40-#41, 737 #9-#12, 740 #3 **Teacher Edition:** AE 690, 691, 698; DI 693; F 691, 699; TWT 690
L2.2.3	Use iterative processes in such examples as computing compound interest or applying approximation procedures.	**Student Edition:** 714-719, 725 #43-#45, 731 #48, 735 #50, 737 #16 *Algebra Lab* 703-704 *Spreadsheet Lab* 720 **Teacher Edition:** A 704, 719; AE 715, 716; DI 716, 719; T 703, 720; TNT 719; TT 703; TWT 716; WO 715, 719

STANDARDS		PAGE REFERENCES
L2.3 Measurement Units, Calculations, and Scales		
L2.3.2	Describe and interpret logarithmic relationships in such contexts as the Richter scale, the pH scale, or decibel measurements; solve applied problems.	**Student Edition:** 495 ex 6, 497 #49-#50, 498 #59, 501 #1-#5, 505 #20-#21, 506 #37, 510 ex 2, 512 #5, 513 #50, 514 #60, 515 #71, 517 ex 2, 519 #5, 520 #39-#40, 521 #66, 528 ex 6, 529 #19, 530 #47, 535 ex 3 *Spreadsheet Lab* 532 **Teacher Edition:** AE 495, 510, 517, 528, 535
STANDARD A1: EXPRESSIONS, EQUATIONS, AND INEQUALITIES		
A1.1 Construction, Interpretation, and Manipulation of Expressions		
A1.1.1	Give a verbal description of an expression that is presented in symbolic form, write an algebraic expression from a verbal description, and evaluate expressions given values of the variables.	**Student Edition:** 5 ex 1, 6 ex 2, 7 #1-#9, 8 #29-#34, 9 #43, 17 #67, 18 ex 1-ex 2, 22 #1-#6, 25 #74, 26 #17, 50 #14-#16, 53 #5-#6, 56 #1, 57 #13 **Teacher Edition:** AE 6, 19; TNT 6
A1.1.4	Add, subtract, multiply, and simplify polynomials and rational expressions.	**Student Edition:** 333-339, 347 #53-#58, 398 #11-#16, 401 #1-#4, 404 #1 **Teacher Edition:** AE 334, 335, 336; DI 334, 339; F 334; TWT 335; WO 334, 335
A1.1.5	Divide a polynomial by a monomial.	**Student Edition:** 341 ex 1, 345 #1-#2, 355 #73-#75, 398 #17 **Teacher Edition:** AE 342
A1.1.6	Transform exponential and logarithmic expressions into equivalent forms using the properties of exponents and logarithms, including the inverse relationship between exponents and logarithms.	**Student Edition:** 492-499, 502-507, 508 #12-#15, 509-515, 525 ex 1, 526 ex 2, 529 #1-#8, 542 #25-#26 **Teacher Edition:** A 507; AE 493, 495, 503, 510, 511, 526; DI 493, 499, 515; F 494, 510; TWT 493, 503, 510

STANDARDS		PAGE REFERENCES
A1.2 Solutions of Equations and Inequalities		
A1.2.2	Associate a given equation with a function whose zeros are the solutions of the equation.	**Student Edition:** 383-390, 391-396, 400 #48-#55, 401 #20-#23, 416 #68-#75 *Algebra Lab* 75 **Teacher Edition:** A 390, 396; AE 384, 385, 386, 387, 392, 393; DI 390; F 384, 393; TWT 385, 392; WO 385
A1.2.5	Solve polynomial equations and equations involving rational expressions and justify steps in the solution.	**Student Edition:** 368-375, 382 #48-#50, 399 #38-#39, 401 #14-#15, 404 #4, 594-602, 608 #45-#51 *Graphing Technology Lab* 603-604 **Teacher Edition:** A 375, 604; AE 370, 371, 595, 596, 597; F 370, 595; TWT 371; WO 595, 597
A1.2.7	Solve exponential and logarithmic equations and justify steps in the solution.	**Student Edition:** 485-491, 502-507, 508 #16-#18, 511 ex 3, 512 #23-#26, 513 #36-#41, 515 #83, 517 ex 3, 519 #6-#9, 520 #23-#28, 522 #77-#80 *Graphing Technology Lab* 483-484 **Teacher Edition:** A 491, 507; AE 486, 487, 503, 511, 517; DI 503, 507; F 486; TWT 487
A1.2.8	Solve an equation involving several variables (with numerical or letter coefficients) for a designated variable, and justify steps in the solution.	**Student Edition:** 21 ex 6, 22 #19-#20, 23 #45-#50, 24 #62, 51 #30-#32, 53 #4, 55 #2, 83, 84 ex 2, 85 ex 3, 86 ex 4, 87 #12-#15, 91 #20-#21, 107 #50-#52, 124 #33-#40, 127 #9 **Teacher Edition:** AE 21, 84, 85, 86
A1.2.9	Know common formulas and apply appropriately in contextual situations.	**Student Edition:** 76-82, 89 #47-#49, 91 #19, 98 #24-#27, 124 #29-#32, 292-300, 310 #57-#59, 318 #70-#72, 323 #51-#57, 617-622 **Teacher Edition:** A 82, 622; AE 77, 78, 293, 294, 295, 296, 618, 619; DI 293; F 77, 293, 620; TWT 296, 619; WO 81, 294

STANDARDS		PAGE REFERENCES
STANDARD A2: FUNCTIONS		
A2.1 Definitions, Representations, and Attributes of Functions		
A2.1.1	Recognize whether a relationship (given in contextual, symbolic, tabular, or graphical form) is a function, and identify its domain and range.	**Student Edition:** P3 #1-#2, P4-P5, P19 #1-#2, 61-67, 74 #61-#63, 91 #1-#2, 123 #7-#10, 127 #1, 130 #1 **Teacher Edition:** AE P4, P5, 62, 63, 64; DI 64; F 63; TNT 62; TWT P4, 62; WO P4, 65
A2.1.2	Read, interpret, and use function notation, and evaluate a function at a value in its domain.	**Student Edition:** 64 ex 4, 56 #9-#10, 66 #35, 82 #48-#50, 91 #3-#5, 123 #11-#16, 127 #2-#3 *Reading Math* 64 **Teacher Edition:** AE 64
A2.1.3	Represent functions in symbols, graphs, tables, diagrams, or words, and translate among representations.	**Student Edition:** P4-P5, 65 #23, 72 #41, 83-89, 91 #20-#21, 102 ex 2, 104 ex 4, 105 #16-#19, 106 #33-#34, 109-116, 121 #42-#44, 125 #46, 126 #49-#52, 127 #15, 131 #8 *Graphing Technology Lab* 108 **Teacher Edition:** A 116; AE 84, 85, 86, 102, 104, 110, 111, 112; DI 89; TWT P4, 85, 116
A2.1.6	Identify the zeros of a function, the intervals where the values of a function are positive or negative, and describe the behavior of a function as *x* approaches positive or negative infinity, given the symbolic and graphical representations.	**Student Edition:** 348-355, 357-364, 367 #19-#21, 375 #88-#90, 383-390, 391-396 *Study Tip* 358 **Teacher Edition:** AE 349, 351, 358, 359, 360, 384, 385, 386, 387, 392, 393; TNT 350, 359; TWT 392; WO 354, 392
A2.1.7	Identify and interpret the key features of a function from its graph or its formula(s).	**Student Edition:** 357-364, 383-390, 391-396, 399 #28-#32, 400 #48-#55, 401 #9-#10, 404 #6, 416 #68-#75 **Teacher Edition:** A 396; AE 358, 359, 360, 384, 385, 386, 387, 392, 393; F 393; TNT 350, 359; TWT 392; WO 392

STANDARDS		PAGE REFERENCES
A2.2 Operations and Transformations with Functions		
A2.2.1	Combine functions by addition, subtraction, multiplication, and division.	**Student Edition:** 409-416, 422 #61-#63, 430 #61, 438 #1-#6, 463 #10-#15, 467 #6-#9 **Teacher Edition:** A 416; AE 410, 411, 412; DI 411, 412, 415; F 410; TWT 411; WO 410, 415
A2.2.2	Apply given transformations to parent functions, and represent symbolically.	**Student Edition:** 109-116, 121 #42-#44, 126 #49-#52, 127 #18, 305-310, 323 #59-#63, 325 #22-#23, 863-870 *Graphing Technology Lab* 108, 303-304 **Teacher Edition:** A 108, 116; AE 110, 111, 112, 306, 307; DI 111, 307; F 112, 306; TWT 116, 306
A2.2.3	Recognize whether a function (given in tabular or graphical form) has an inverse, and recognize simple inverse pairs.	**Student Edition:** 417-422, 430 #58-#60, 463 #17-#29, 467 #1-#4, 470 #8, 471 #15 *Graphing Technology Lab* 423 **Teacher Edition:** A 423; AE 418, 419; DI 419, 422; T 423; TNT 419; TWT 418
A2.3 Representations of Functions		
A2.3.1	Identify a function as a member of a family of functions based on its symbolic or graphical representation; recognize that different families of functions have different asymptotic behavior.	**Student Edition:** 109-116, 121 #42-#44, 126 #49-#52, 127 #18, 305-310, 323 #59-#63, 325 #22-#23 *Graphing Technology Lab* 108, 303-304 **Teacher Edition:** A 108, 116; AE 110, 111, 112, 306, 307; DI 111, 307; F 112, 306; TWT 116, 306
A2.3.3	Write the general symbolic forms that characterize each family of functions.	**Student Edition:** 115 #44, 305, 309 #51 *Concept Summary* 112, 307 *Graphing Technology Lab* 303-304 *Key Concept* 109 **Teacher Edition:** A 304; F 112, 306; TWT 116

STANDARDS		PAGE REFERENCES
	A2.4 Models of Real-World Situations Using Families of Functions	
A2.4.1	Identify the family of functions best suited for modeling a given real-world situation.	**Student Edition:** *Graphing Technology Lab* 319, 365-366, 500-501 **Teacher Edition:** A 319, 366, 501; DI 365; T 319, 365, 500
A2.4.2	Adapt the general symbolic form of a function to one that fits the specifications of a given situation by using the information to replace arbitrary constants with numbers.	**Student Edition:** 305-310, 323 #59-#63, 325 #22-#23 *Graphing Technology Lab* 108, 303-304 **Teacher Edition:** A 108; AE 306, 307; DI 111, 307; F 306; TWT 306
A2.4.3	Using the adapted general symbolic form, draw reasonable conclusions about the situation being modeled.	**Student Edition:** *Graphing Technology Lab* 319, 365-366, 500-501 **Teacher Edition:** A 319, 366, 501; DI 365; T 319, 365, 500
	STANDARD A3: FAMILIES OF FUNCTIONS	
	A3.2 Exponential and Logarithmic Functions	
A3.2.2	Interpret the symbolic forms and recognize the graphs of exponential and logarithmic functions.	**Student Edition:** 475-482, 491 #54-#56, 494 ex 4, 495 ex 5, 496 #8-#11, 497 #51-#56, 542 #11-#16, 545 #1-#2, 548 #6 *Graphing Technology Lab* 500-501 **Teacher Edition:** AE 476, 477, 478, 479, 494, 495; F 477; TWT 476; WO 477, 480
A3.2.3	Apply properties of exponential and logarithmic functions.	**Student Edition:** 492-499, 502-507, 509-515, 525 ex 1, 526 ex 2, 529 #1-#8 **Teacher Edition:** AE 493, 495, 503, 510, 511, 526; DI 493, 499, 515; F 494, 510; TWT 493, 503, 510
	A3.6 Rational Functions	
A3.6.1	Write the symbolic form and sketch the graph of simple rational functions.	**Student Edition:** 571 ex 3, 572 ex 4, 573 #11-#22, 574 #30-#35, 576 #19-#24, 578 ex 1, 581 #1-#2, 582 #8-#11, 602 #47-#49, 607 #24-#29, 609 #11-#16 *Graphing Technology Lab* 585 *Key Concept* 569, 571, 577 **Teacher Edition:** A 575; AE 571, 572, 578; DI 570; TWT 571

STANDARDS		PAGE REFERENCES
A3.6.2	Analyze graphs of simple rational functions and understand the relationship between the zeros of the numerator and denominator, and the function's intercepts, asymptotes, and domain.	**Student Edition:** 569 ex 1, 570 ex 2, 573 #7-#10, 574 #41, 576 #17-#18, 579 ex 2, 580 ex 3, 581 #3, 582 #27, 583 #43, 593 #57-#59, 607 #31-#33, 609 #9-#10, 613 #14 **Teacher Edition:** AE 570, 579, 580; DI 579; F 571; TWT 578
	STANDARD G1: FIGURES AND THEIR PROPERTIES	
	G1.7 Conic Sections and Their Properties	
G1.7.1	Find an equation of a circle given its center and radius; given the equation of a circle, find its center and radius.	**Student Edition:** 631-637, 646 #51-#53, 647 #13-#16, 655 #56-#58, 670 #30-#35, 673 #7-#16 *Concept Summary* 656 *Graphing Technology Lab* 630, 661 **Teacher Edition:** A 635; AE 632, 633; DI 634; TWT 633; WO 633
G1.7.2	Identify and distinguish among geometric representations of parabolas, circles, ellipses, and hyperbolas; describe their symmetries, and explain how they are related to cones.	**Student Edition:** 631-637, 639-646, 647 #11-#20, 648-655, 656-661 *Algebra Lab* 638 *Graphing Technology Lab* 630 **Teacher Edition:** A 635, 646; AE 632, 633, 640, 641, 649, 650, 651; DI 634, 641; F 640; TNT 641; TWT 633, 640; WO 633
G1.7.3	Graph ellipses and hyperbolas with axes parallel to the *x*- and *y*-axes, given equations.	**Student Edition:** 642 ex 4, 644 #24-#31, 645 #39, 650 ex 3, 652 #5-#8, 653 #14-#23, 654 #44, 660 #53-#55, 667 #62-#64, 670 #37-#44, 671 #46-#50, 673 #7-#16 *Graphing Technology Lab* 661 **Teacher Edition:** AE 642, 650; F 642, 650; TWT 640; WO 651

	STANDARDS	PAGE REFERENCES
	STANDARD S1: UNIVARIATE DATA-EXAMINING DISTRIBUTIONS	
	S1.1 Producing and Interpreting Plots	
S1.1.1	Construct and interpret dot plots, histograms, relative frequency histograms, bar graphs, basic control charts, and box plots with appropriate labels and scales; determine which kinds of plots are appropriate for different types of data; compare data sets and interpret differences based on graphs and summary statistics.	**Student Edition:** 92-98, 107 #49, 116 #55, 125 #42-#43, 127 #13, 131 #12, 1001, 1002-1003, 1004, 1005-1006 *Algebra Lab* 99-100 **Teacher Edition:** A 1004, 1006; AE 93, 94, 95, 1001, 1002, 1003, 1004, 1005, 1006; F 93; TNT 93, 1006; TWT 95
	S1.2 Measures of Center and Variation	
S1.2.1	Calculate and interpret measures of center including: mean, median, and mode; explain uses, advantages and disadvantages of each measure given a particular set of data and its context.	**Student Edition:** 752-758, 763 #32, 772 #9, 795 #12-#16, 799 #5-#6, 802 #1 **Teacher Edition:** AE 753, 754; DI 753, 758; F 754; TNT 756; TWT 754; WO 754