



**MATHConnections Correlation to the Oklahoma Priority Academic Student Skills
Grade 9-12
Algebra II**

Standard	Location/Page where Standard is found
Standard 1: Number Systems and Algebraic Operations - The student will perform operations with rational, radical, and polynomial expressions, as well as expressions involving complex numbers.	
1. Rational Exponents	
a. Convert expressions from radical notations to rational exponents and vice versa.	Book 3a: 158 – 163, 217, 218
b. Add, subtract, multiply, divide, and simplify radical expressions and expressions containing rational exponents.	Book 3a: 158 – 163, 217, 218, 227 – 229 Book 3b: 651 – 652
2. Polynomial and Rational Expressions	
a. Divide polynomial expressions by lower degree polynomials.	Book 3a: 85 – 89, 115, 142 – 148 Book 3b: 673 – 681
b. Add, subtract, multiply, divide, and simplify rational expressions, including complex fractions.	Book 3b: 673 – 681
3. Complex Numbers	
a. Recognize that to solve certain problems and equations, number systems need to be extended from real numbers to complex numbers.	Book 3a: 42, 48 – 56, 83, 84, 116 Book 3b: 604

b. Add, subtract, multiply, divide, and simplify expressions involving complex numbers.	Book 3a: 50 – 52, 54 – 56, 116
Standard 2: Relations and Functions - The student will use the relationships among the solution of an equation, zero of a function, x-intercepts of a graph, and factors of a polynomial expression to solve problems involving relations and functions.	
1. Functions and Function Notation	
a. Recognize the parent graphs of polynomial, exponential, and logarithmic functions and predict the effects of transformations on the parent graphs, using various methods and tools which may include graphing calculators.	Book 3a: 57 – 65, 116, 166, 176, 189, 218, 316 – 324
b. Add, subtract, multiply, and divide functions using function notation.	Book 3a: 79, 143 – 148 Book 3b: 648 – 650 See also Book 1b: 615 – 622
c. Combine functions by composition.	Book 3b: 543, 657 See also Book 1b: 494 – 505
d. Use algebraic, interval, and set notations to specify the domain and range of functions of various types.	Book 3a: 8, 13, 19, 23, 25, 67, 90, 92, 96, 98, 104, 107, 109, 113, 114, 196, 231, 256, 260, 263, 264, 285, 286 Book 3b: 617, 645
e. Find and graph the inverse of a function, if it exists.	Book 3a: 90 – 97, 117, 188, 196, 206, 231, 259, 262, 282 – 286 Book 3b: 656, 657, 661
2. Systems of Equations	
a. Model a situation that can be described by a system of equations or inequalities and use the model to answer questions about the situation.	Book 3a: 177, 186, 187, 212, 220, 221, 342 – 345, 348, 349, 356, 357, 382 – 384, 388 – 391 Book 3b: 698 – 700
b. Solve systems of linear equations and inequalities using various methods and tools which may include substitution, elimination, matrices, graphing, and graphing calculators.	Book 3a: 126 – 130, 177, 186, 187, 212, 220, 221, 342 – 345, 348, 349, 356, 357, 382 – 384, 388 – 391 Book 3b: 698 – 700
c. Use either one quadratic equation and one linear equation or two quadratic equations to solve problems.	Book 3a: 389 Book 3b: 695 – 700

3. Quadratic Equations and Functions	
a. Solve quadratic equations by graphing, factoring, completing the square and quadratic formula.	Book 3a: 25, 37, 38, 42 – 47, 88, 113, 114, 116, 132
b. Graph a quadratic function and identify the x- and y-intercepts and maximum or minimum value, using various methods and tools which may include a graphing calculator.	Book 3a: 13, 16, 18, 20, 21, 22, 25, 33 – 38, 37, 38, 41 – 47, 57 – 65, 108, 322, 388, 389
c. Model a situation that can be described by a quadratic function and use the model to answer questions about the situation.	Book 3a: 11 – 37, 47, 64, 65, 114, 115
4. Identify, graph, and write the equations of the conic sections (circle, ellipse, parabola, and hyperbola).	Book 3b: 627 – 672, 683 – 700
5. Exponential and Logarithmic Functions	
a. Graph exponential and logarithmic functions.	Book 3a: 153, 166 – 170, 173 - 176, 188, 196, 198, 204, 214, 319, 320, 322
b. Apply the inverse relationship between exponential and logarithmic functions to convert from one form to another	Book 3a: 190 – 197, 211 – 215
c. Model a situation that can be described by an exponential or logarithmic function and use the model to answer questions about the situation.	Book 3a: 151 – 154, 162 – 187, 205 – 215, 218 - 222
6. Polynomial Equations and Functions	
a. Solve polynomial equations using various methods and tools which may include factoring and synthetic division.	Book 3a: 75 – 88, 117, 131 – 148
b. Sketch the graph of a polynomial function.	Book 3a: 73 – 75, 81, 82, 86, 88
c. Given the graph of a polynomial function, identify the x- and y-intercepts, relative maximums and relative minimums, using various methods and tools which may include a graphing calculator.	Book 3a: 68, 73, 74 – 78, 80 – 82, 88, 114
d. Model a situation that can be described by a polynomial function and use the model to answer questions about the situation.	Book 3a: 66 – 68, 75 – 78

7. Rational Equations and Functions	
a. Solve rational equations.	Book 3a: 646 – 648, 653, 672
b. Sketch the graph of a rational function.	Book 3a: 100 – 105, 109 Book 3b: 650 – 654
c. Given the graph of a rational function, identify the x- and y-intercepts, asymptotes, using various methods and tools which may include a graphing calculator.	Book 3a: 100 – 105, 109 Book 3b: 646 – 650, 653, 654, 672
d. Model a situation that can be described by a rational function and use the model to answer questions about the situation.	Book 3a: 98 – 102, 110 Book 3b: 644, 645
Standard 3: Data Analysis and Statistics - The student will use data analysis and statistics to formulate and justify predictions from a set of data.	
1. Analysis of Collected Data Involving Two Variables	
a. Display data on a scatter plot.	Book 3a: 16, 17, 22, 60, 64, 65, 119 – 122, 205 See also Book 1a: 289 – 351
b. Interpret results using a linear, exponential or quadratic model/equation.	Book 3a: 16, 17, 22, 60, 64, 65, 205 See also Book 1a: 289 – 351
c. Identify whether the model/equation is a curve of best fit for the data, using various methods and tools which may include a graphing calculator.	Book 3a: 16, 17
2. Measures of Central Tendency and Variability	
a. Analyze and synthesize data from a sample using appropriate measures of central tendency (mean, median, mode, weighted average).	See Book 1a: 14 – 53
b. Analyze and synthesize data from a sample using appropriate measures of variability (range, variance, standard deviation).	Book 3b: 459 – 466 See also Book 1a: 15, 43 – 61, 63 - 68
c. Use the characteristics of the Gaussian normal distribution (bell-shaped curve) to solve problems.	Book 3b: 449 – 466, 472

d. Identify how given outliers affect representations of data.	See Book 1a: 18, 33 – 42, 71, 298, 359, 360
3. Identify and use arithmetic and geometric sequences and series to solve problems.	Book 3b: 578 – 582, 606 – 617, 670, 671 See also Book 1b: 442 – 450, 507, 508, 518 – 524