



Pre-AP Algebra II

The Oklahoma *CareerTech* Pre-AP Algebra II Standard is provided as a framework for teachers. It is meant to be a rigorous curriculum that challenges the advanced, motivated student. It should be used as a tool that can be enhanced, rearranged, or personalized for any area. A group of Mathematics Instructors collaborated in order to identify the Algebra II areas most important to the success of a college-bound and/or well-equipped 21st century work-ready student. They correlated these areas with Oklahoma PASS Objectives (Priority Academic Student Skills) and NCTM (National Council of Teachers of Mathematics) Content and Process Standards.

Course Description:

This course will enhance and expand the mathematical foundations of Algebra I and Geometry. The course will stress the fundamental extension of previous mathematics and the preparation for future higher-level mathematics courses. It will involve operations with real and complex numbers as well as matrices. The problem solving processes will use functions and relations. Within the course applications of math and while satisfying predictions based on a set of data, the use of data analysis, and statistics will be justified. Students who master *CareerTech* Algebra II will gain experience with quadratic functions, logarithmic and exponential functions, linear functions, solution methods for systems of linear functions, and matrix operations. The prerequisites for this course are Algebra I and Geometry.

Requirements for College Admission Status (Title 70 O.S. § 11-103.6)

These courses are to be taught by a highly qualified teacher with an Oklahoma Intermediate or Advanced Mathematics teaching certification. The students should be in the eleventh or twelfth grade or if a sophomore, they should be in a Focused Field of Career Study program. The course will have at a minimum, but may exceed, a duration of 120 hours within a school year.



Pre-AP Algebra II Syllabus

Objective	NCTM Standard	Oklahoma Algebra II PASS Standard
I. Equations and Inequalities		
A. Identify properties of and use operations with real numbers	Numbers & Operations Algebra Measurement	1.1, 1.3a, 3.2, 3.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
B. Use a general problem-solving plan to solve real-life problems	Numbers & Operations Algebra Measurement	1.1, 1.3a, 3.1, 3.2, 3.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
C. Use other problem-solving strategies to help solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.1, 1.3a, 2.11, 3.1, 3.2, 3.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
D. Solve compound inequalities	Numbers & Operations Algebra Measurement	1.3a, 1.3b, 1.3c, 2.1, 2.2, 2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
E. Solve absolute value equations and inequalities	Numbers & Operations Algebra Measurement	2.13a, 2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
F. Use absolute value equations and inequalities to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.13a, 2.13b, 2.13c, 3.1 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.1, 4.2, 4.3, 4.4, 5.1,

		5.2, 5.3
II. Linear Equations and Functions		
A. Represent relations and functions	Numbers & Operations Algebra	1.1, 2.1, 2.2, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10a, 2.10b, 2.10c, 2.11 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.2, 5.1, 5.2, 5.3
B. Write direct variation equations	Numbers & Operations Algebra	2.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
C. Represent piecewise functions	Numbers & Operations Algebra Measurement	2.8, 2.11, 2.13a, 2.13b, 2.13c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
D. Use piecewise functions to model real-life quantities	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
E. Represent absolute value functions	Numbers & Operations Algebra	2.8 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
F. Use absolute value functions to model real-life situations	Numbers & Operations Algebra Measurement	3.2, 3.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3

III. Systems of Linear Equations and Inequalities		
A. Graph a system of linear inequalities to find the solutions of the system	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.2, 2.7, 2.8 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
B. Use systems of linear inequalities to solve real-life problems	Numbers & Operations Algebra Measurement	2.2, 2.8, 2.9, 2.11 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
IV. Matrices and Determinants		
A. Add and subtract matrices, multiply a matrix by a scalar, and solve matrix equations	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.3a, 1.3b, 1.3c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
B. Use matrices in real-life	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.3a, 1.3b, 1.3c, 2.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
C. Multiply two matrices	Numbers & Operations Algebra	1.3a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
D. Use matrix multiplication in real-life situations	Numbers & Operations Algebra Measurement	1.3a, 1.3b, 1.3c, 2.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3

E. Evaluate determinants of 2×2 and 3×3 matrices	Numbers & Operations Algebra	1.3b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
F. Use Cramer's rule to solve systems of linear equations	Numbers & Operations Algebra Measurement	1.3a, 1.3c, 2.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
G. Find and use inverse matrices	Numbers & Operations Algebra	1.3b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
H. Use inverse matrices in real-life situations	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.3b, 2.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
I. Solve systems of linear equations using inverse matrices	Numbers & Operations Algebra	1.3b, 1.3c, 2.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
J. Use systems of linear equations to solve real-life problems	Numbers & Operations Algebra Measurement	1.3a, 1.3b, 1.3c, 2.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
V. Quadratic Equations		
A. Graph quadratic functions	Numbers & Operations Algebra Data Analysis & Probability	2.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

B. Use quadratic functions to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.3, 2.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
C. Factor quadratic expressions and solve quadratic equations by factoring	Numbers & Operations Algebra	2.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
D. Find zeros of quadratic functions	Numbers & Operations Algebra	2.3, 2.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
E. Solve quadratic equations by finding square roots	Numbers & Operations Algebra	2.3, 2.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
F. Use quadratic equations to solve real-life problems	Numbers & Operations Algebra Measurement	2.3, 2.4, 2.5 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
G. Solve quadratic equations with complex solutions and perform operations with complex numbers	Numbers & Operations Algebra	1.1, 2.3, 2.4, 2.5 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
H. Apply complex numbers to fractal geometry	Numbers & Operations Algebra Measurement	1.1, 2.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

I. Solve quadratic equations by completing the square	Numbers & Operations Algebra	2.3, 2.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
J. Use completing the square to write quadratic functions in vertex form	Numbers & Operations Algebra	2.3, 2.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
K. Solve quadratic equations using the quadratic formula	Numbers & Operations Algebra	2.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
L. Use the quadratic formula in real-life situations	Numbers & Operations Algebra Measurement	2.3, 2.4, 2.5, 2.8 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
M. Graph quadratic inequalities in two variables	Numbers & Operations Algebra	2.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
N. Solve quadratic inequalities in one variable	Numbers & Operations Algebra	2.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
VI. Polynomials and Polynomial Functions		
A. Use properties of exponents to evaluate and simplify expressions involving powers	Numbers & Operations Algebra Measurement	1.2, 2.12b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

B. Evaluate a polynomial function	Numbers & Operations Algebra Measurement	2.12a, 2.12b, 2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
C. Graph a polynomial function	Numbers & Operations Algebra	2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
D. Use polynomial operations in real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.12a, 2.12b, 2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
E. Factor polynomial expressions	Numbers & Operations Algebra	2.12b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
F. Use factoring to solve polynomial equations	Numbers & Operations Algebra	2.12b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
G. Divide polynomials and relate the result to the remainder theorem and the factor theorem	Numbers & Operations Algebra Data Analysis & Probability	NA Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
H. Use polynomial division in real-life problems	Numbers & Operations Algebra Measurement	2.12a, 2.12b, 2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3

I. Find the rational zeros of a polynomial function	Numbers & Operations Algebra	2.12a, 2.12b, 2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
J. Use polynomial equations to solve real-life problems	Numbers & Operations Algebra Measurement	2.12a, 2.12b, 2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
K. Use the fundamental theorem of algebra to determine the number of zeros of a polynomial function	Numbers & Operations Algebra Data Analysis & Probability	2.12b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
L. Use technology to approximate the real zeros of a polynomial function	Numbers & Operations Algebra	2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
M. Analyze the graph of a polynomial function	Numbers & Operations Algebra Data Analysis & Probability	2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
N. Use the graph of a polynomial function to answer questions about real-life situations	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.12c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
VII. Powers, Roots, and Radicals		
A. Evaluate n th roots of real numbers using both radical notation and rational exponent notation	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.2, 2.10c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

B. Use nth roots to solve real-world problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.2, 2.10a, 2.10c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
C. Use properties of rational exponents to evaluate and simplify expressions	Numbers & Operations Algebra Measurement	1.2, 2.13a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
D. Use properties of rational exponents too solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.2, 2.10c, 2.13b, 2.13c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
E. Perform operations with functions including power functions	Numbers & Operations Algebra	1.1, 2.2, 2.3, 2.8, 2.10c, 2.11, 2.12c, 2.13b, 3.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
F. Use power functions and function operations to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.1, 2.2, 2.3, 2.8, 2.10c, 2.11, 2.12c, 2.13b, 3.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
G. Find inverses of linear functions	Numbers & Operations Algebra	2.2, 2.9 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

H. Find inverses of nonlinear functions	Numbers & Operations Algebra	2.10a, 2.12a, 2.9 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
I. Solve equations that contain radicals or rational exponents	Numbers & Operations Algebra	1.2, 2.13a, 2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
J. Use radical equations to solve real-life problems	Numbers & Operations Algebra Measurement	1.2, 2.13a, 2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
K. Use measures of central tendency and measures of dispersion to describe data sets	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.2, 3.3 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
VIII. Exponential and Logarithmic Functions		
A. Graph exponential growth functions	Numbers & Operations Algebra Measurement	2.10a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
B. Use exponential growth functions	Numbers & Operations Algebra Measurement	2.10c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
C. Graph exponential decay functions	Numbers & Operations Algebra Measurement	2.10a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

D. Use exponential decay functions to model real-life situations	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.10c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
E. Use the number “e” as the base of exponential functions	Numbers & Operations Algebra	2.10b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
F. Use the natural base “e” in real-life situations	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.10c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
G. Evaluate logarithmic functions	Numbers & Operations Algebra	2.10a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
H. Use properties of logarithmic functions	Numbers & Operations Algebra	2.10b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
I. Use properties of logarithms to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.10c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
J. Solve exponential equations	Numbers & Operations Algebra	2.10a, 2.10b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

K. Model data with exponential functions	Numbers & Operations Algebra Measurement	2.10a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
L. Model data with power functions	Numbers & Operations Algebra Measurement	NA Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
IX. Rational Equations and Functions		
A. Write and use inverse variation models	Numbers & Operations Algebra Measurement Data Analysis & Probability	NA Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
B. Write and use joint variation models	Numbers & Operations Algebra Measurement	NA Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
C. Graph simple rational functions	Numbers & Operations Algebra	2.13c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
D. Use the graph of a rational functions to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.13b, 2.13c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
E. Graph general rational functions	Numbers & Operations Algebra	2.13c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3

F. Use the graph of a rational function to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.13c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
G. Multiply and divide rational expressions	Numbers & Operations Algebra	2.13a, 2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
H. Use rational expressions to model real-life quantities	Numbers & Operations Algebra Measurement	2.13a, 2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
I. Add and subtract rational expressions	Numbers & Operations Algebra	2.13a, 2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
J. Simplify complex fractions	Numbers & Operations Algebra	2.13a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
K. Solve rational equations	Numbers & Operations Algebra	2.13b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
L. Use rational equations to solve real-life problems	Numbers & Operations Algebra Measurement	2.13b, 2.13c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
X. Sequences and Series		

A. Use and write sequences	Numbers & Operations Algebra	3.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
B. Use summation notation to write series and find sums of series	Numbers & Operations Algebra	3.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
XI. Probability and Statistics		
A. Use the binomial theorem to expand a binomial that is raised to a power	Numbers & Operations Algebra Measurement Data Analysis & Probability	NA Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
B. Find probabilities of unions and intersections of two events	Numbers & Operations Algebra Measurement Data Analysis & Probability	NA Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3

References and Resources

Referenced Standards

Principles and Standards for School Mathematics (4th ed.). (2005).
National Council of Teachers of Mathematics, Reston, VA

Oklahoma Priority Academic Student Skills (2003). Oklahoma State
Department of Education-PASS-www.sde.state.ok.us

Suggested Text and Supplemental Materials

Larson, Ron, Boswell, Laurie, Kanold, Timothy, & Stiff, Lee. (2006).
Algebra 2. Boston: McDougal Littell.

Larson, Ron, Boswell, Laurie, Kanold, Timothy, & Stiff, Lee. (2006).
Resource Manager. Boston: McDougal Littell.

Larson, Ron, Boswell, Laurie, Kanold, Timothy, & Stiff, Lee. (2006). *Data
Analysis Sourcebook*. Boston: McDougal Littell.

Lial, Margaret L., Hornsby, John, & McGinnis, Terry (2004). *Algebra for
College Students* (5th ed.). Boston: Addison-Wesley.

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Optional Material

The following material should have been mastered prior to Algebra II, but may be revisited and reviewed if time permits. The Oklahoma Algebra I PASS Content Standards that were updated in August 2006 were used for correlation.

Objective	NCTM Standard	Oklahoma Algebra I PASS Standard
I. Equations and Inequalities		
A. Use a number line to graph and order real numbers	Numbers & Operations Algebra	2.1d Process Standards 1.1,1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
B. Evaluate algebraic expressions	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.1a, 1.1c, 1.2a, 2.2e, 2.3b, 2.5a, 3.1a, 3.1b Process Standards 1.1,1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
C. Simplify algebraic expressions by combining like terms	Numbers & Operations Algebra	1.1a, 1.1b, 1.1c, 1.1d, 1.2a, 1.2b, 2.2cI, 2.4, 2.5b, 3.1c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
D. Solve linear equations	Numbers & Operations Algebra Measurement	1.1b, 1.2a, 2.1a, 2.2a, 2.2cI, 2.2d, 2.2e, 2.3a, 2.3b, 2.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
E. Use linear equations to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.1b, 1.2a, 2.1a, 2.2a, 2.2cI, 2.2d, 2.2e, 2.3a, 2.3b, 2.4, 3.1c, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3

F. Rewrite equations with more than one variable	Numbers & Operations Algebra	1.1b, 2.5b, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
G. Rewrite common formulas	Numbers & Operations Algebra	1.1a, 1.1b, 1.2a, 1.2b, 3.1c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
H. Solve simple inequalities	Numbers & Operations Algebra Measurement	1.1b, 1.2a, 2.2a, 2.3a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 4.2, 5.1, 5.2, 5.3
II. Linear Equations and Functions		
A. Graph and evaluate linear functions	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.2a, 2.2b, 2.2cI, 2.2cII, 2.2cIII, 2.2d, 2.2e, 2.3a, 2.3b, 2.4, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
B. Find slopes of lines and classify parallel and perpendicular lines	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.2cI, 2.2cII, 2.2cIII Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
C. Use slope to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.2cIII, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
D. Use the slope-intercept form of a linear equation to graph linear equations	Numbers & Operations Algebra Measurement Data Analysis & Probability	2.2cII, 2.2cIII, 2.2d, 2.4 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
E. Use the standard	Numbers & Operations	2.2a, 2.3a, 2.4

form of a linear equation to graph linear equations	Algebra Measurement	Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
F. Write linear equations	Numbers & Operations Algebra	1.1a, 1.1c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
G. Graph linear inequalities in two variables	Numbers & Operations Algebra Measurement	2.2a, 2.2d, 2.3a, 2.3b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
H. Use linear inequalities in two variables	Numbers & Operations Algebra	2.2a, 2.3a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
III. Systems of Linear Equations and Inequalities		
A. Graph and solve systems of linear equations in two variables	Numbers & Operations Algebra Measurement	2.2a, 2.2d, 2.3a, 2.3b Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
B. Use linear systems to solve real-life problems	Numbers & Operations Algebra Measurement	2.2cIII, 3.1c, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
C. Use algebraic methods to solve linear systems	Numbers & Operations Algebra Measurement	1.1b, 1.1c, 1.1d, 2.2a, 2.2cI, 2.2d, 2.3a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
D. Use linear systems to model real-life situations	Numbers & Operations Algebra Measurement	2.2cIII, 3.1a, 3.1c, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2,

		5.3
IV. Polynomials and Polynomial Functions		
A. Use exponents and scientific notation to solve real-life problems	Numbers & Operations Algebra Measurement Data Analysis & Probability	1.1c, 1.1d, 2.2cIII, 3.1c, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
B. Add, subtract, and multiply polynomials	Numbers & Operations Algebra	1.2b, 1.2c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3
V. Probability and Statistics		
A. Use the fundamental counting principle to count the number of ways an event can happen	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.1a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
B. Use permutations to count the number of ways an event can happen	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.1a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
C. Use combinations to count the number of ways an event can happen	Numbers & Operations Algebra Measurement	3.1a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
D. Find theoretical and experimental probabilities	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.1a, 3.1b, 3.1c, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
E. Find geometric probabilities	Numbers & Operations Algebra Measurement Data Analysis &	3.1a Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1,

	Probability	4.2, 4.3, 4.4, 5.1, 5.2, 5.3
F. Use complements to find the probability of an event	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.1a, 3.1c Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
G. Find the probability of independent events	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.1c, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3
H. Find the probability of dependent events	Numbers & Operations Algebra Measurement Data Analysis & Probability	3.1c, 3.2 Process Standards 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 3.4, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.3