

Quarter 1

Chapter 3: Graphs, Linear Equations, and Functions

Students will be able to:

- graph linear functions with and without technology
- determine and interpret slope and intercepts of linear functions
- solve problems involving parallel and perpendicular lines
- write the equation of a line
- solve applications of linear functions
- write and graph linear inequalities in two variables
- define a function
- distinguish between a relation and a function
- determine domain and range of a function
- use function notation
- perform linear regression using technology

Chapter 4: Systems of Linear Equations

Students will be able to:

- solve systems of linear equations in two variables with and without technology
- apply systems of linear equations to real world problems
- solve systems with three or more variables using technology and matrices
- solve linear programming problems

Chapter 5: Exponents, Polynomials, and Polynomial Functions

Students will be able to:

- use scientific notation
- simplify expressions using properties of exponents
- add and subtract polynomial expressions
- graph basic polynomial functions
- find compositions of functions
- multiply and divide (synthetic and long division) polynomials

Chapter 6: Factoring

Students will be able to:

- factor by using the greatest common factor and grouping
- factor trinomials
- factor in special cases such as: difference of squares, perfect square, difference and sum of cubes
- solve equations by factoring

Quarter 2

Chapter 7: Rational Expressions and Functions

Students will be able to:

- multiply, divide, add, and subtract rational expressions
- simplify rational expressions
- simplify complex fractions
- solve rational equations
- graph basic rational functions such as reciprocal functions
- solve real world problems involving rational expressions

Chapter 12: Polynomial and Rational Functions

- find the zeros of a polynomial function algebraically as well as with a graphing calculator
- sketch the graph of a polynomial function using end behavior, zeros, and test points
- write a polynomial function given its zeros
- algebraically find vertical asymptotes, end behavior asymptotes, and holes of a rational function

Chapter 8: Roots, Radicals, and Root Functions

- simplify radical expressions
- convert between radical and rational exponent notation
- perform operations on radical expressions
- solve radical equations
- graph functions defined by radical expressions

Chapter 9: Quadratic Equations and Inequalities

- solve quadratic equations by factoring, completing the square, and quadratic formula
- solve equations of quadratic form
- solve real world problems involving quadratic equations

Quarter 3

Chapter 10: Additional Graphs of Functions and Relations

- graph quadratic functions in vertex form, standard form, and intercept form
- model data using quadratic functions and technology
- write quadratic functions in vertex form, standard form, and intercept form
- identify symmetry of functions
- determine whether a function is even, odd, or neither
- piecewise linear functions, absolute value functions, and greatest integer functions

Chapter 11: Inverse, Exponential, and Logarithmic Functions

- find inverse functions graphically, numerically, and algebraically
- determine whether a function has an inverse function
- define and graph exponential functions
- solve exponential equations
- solve exponential growth and decay problems
- define and graph logarithmic function as inverses of exponential functions
- prove and use properties of logarithms
- solve logarithmic equations
- apply logarithms to real world problems

Quarter 4

Trigonometry and Trigonometric Functions

- six right triangle trigonometric ratios
- special right triangles
- angle measures and conversions between degrees and radians
- coterminal, complementary, and supplementary angles
- unit circle
- reference angles

Statistics

- Counting Methods(Combinations, Permutations, Binomial Theorem)
- Fundamental Laws of Probability
- Normal Distributions
- Areas under the normal curve
- Confidence intervals for a population mean
- Confidence intervals for a population proportion
- Comparison of two parameters