LUMEN LEARNING

College Algebra: Topic List by Module

Algebra Essentials

- Real Numbers
- Algebraic Expressions
- Exponents and Scientific Notation
- Radical Expressions
- Rational Exponents

Polynomial and Rational Expressions

- Polynomial Expressions
- Factoring Polynomial Expressions
- Rational Expressions

Linear Equations and Inequalities

- Graphing and Analyzing Linear Equations
- Equations of Lines
- Modeling Linear Equations
- Linear Inequalities

Non-Linear Equations

- Quadratic Equations
- Radical Equations
- Rational Equations
- Polynomial Equations
- Absolute Value Equations
- Modeling Non-Linear Equations
- Absolute Value Inequalities

Function Basics

- Common or Toolkit Functions

- Characteristics of Common Functions
- Domain and Range of Functions
- Rates of Change and Graph Behaviors

Algebraic Operations on Functions

- Combining Functions Algebraically
- Compositions of Functions
- Transformations of Functions
- Inverse of Functions

Linear Functions

- Linear Functions
- Graphing and Writing Linear Equations
- Modeling with Linear Functions

Quadratic Functions

- Quadratic Functions
- Complex Numbers
- Solving Quadratic Problems

Power and Polynomial Functions

- Power Functions
- Polynomial Functions
- Graphing and Writing Equations for Polynomial Functions
- Dividing Polynomial Functions
- Finding Zeros of Polynomial Functions

Rational and Radical Functions

- Rational Functions
- Inverse of Polynomial Functions
- Radical Functions
- Inverse of Radical Functions

- Solving Variation Functions

Exponential and Logarithmic Functions

- Exponential Functions
- Evaluation and Application of Exponential Functions
- Logarithmic Functions
- Conversion Between Forms
- Evaluation of Logarithms

Exponential and Logarithmic Equations and Models

- Logarithmic Rules
- Expanding and Condensing Logarithmic Expressions
- Change of Base Formula
- Exponential Equations
- Logarithmic Equations
- Graphing and Modeling with Exponential and Logarithmic Functions

Systems of Equations and Inequalities

- Systems of Linear Equations with Two Variables
- Systems of Nonlinear Equations
- Systems of Equations Involving Three Variables
- Decomposition of Rational Expressions Using Systems of Equations

Solving Systems With Matrices

- Matrices
- Matrix Operations
- Using Matrices to Solve Systems of Equations
- Solving Systems Using Inverse Matrices

Conic Sections

- Circles
- Ellipses

- Hyperbolas
- Parabolas

Sequences and Series

- Sequences
- Arithmetic Sequences
- Geometric Sequences
- Series and Summation

Probability and Counting Principles

- Counting Principles
- Addition and Multiplication Principles
- Permutations
- Combinations
- Binomial Theorem
- Probability Models