

LSU Dual Enrollment Program for Math

Algebra III COURSE PROFILE 6-1-2024

ETEXT: *Algebra & Trigonometry with Interactive Assessments, 4e, MyLab Math*, Kirk Trigsted
HIGH SCHOOL COURSE CODE: 160375

CHAPTERS

R – Review

1 – Equations and Inequalities

2 – The Rectangular Coordinate System, Lines, and Circles

3 – Functions

5 – Exponential and Logarithmic Functions and Equations

12 – Systems of Equations

The number in parentheses indicates the number of homework exercises on that topic in MyLab Math.

Chapter R: Review

Section R.1 Real Numbers (25)

Understand and classify real numbers

Describe sets of numbers using set-builder notation and interval notation

Determine the intersection and union of sets and intervals

Understand absolute value and use it to find distance

Section R.2 Order of Operations and Algebraic Expressions (38)

Understand the properties of real numbers

Use exponential notation

Use the order of operations to simplify numeric and algebraic expressions

Section R.3 Integer Exponents (55)

Understand the laws of exponents

Simplify exponential expressions involving integer exponents

Section R.4 Radicals and Rational Exponents (60)

Simplify radical expressions

Simplify expressions involving rational exponents

Section R.5 Polynomials (48)

Understand the definition of a polynomial

Add and subtract polynomials

Multiply polynomials

Section R.6 Operations with Radicals (42)

Add and subtract radical expressions

Multiply radical expressions

Section R.7 Factoring Polynomials (77)

- Factor out a greatest common factor
- Factor by grouping
- Factor trinomials with a leading coefficient equal to one
- Factor trinomials with a leading coefficient not equal to one
- Factor using special factoring formulas

Section R.8 Rational Expressions (77)

- Simplify rational expressions
- Multiply and divide rational expressions
- Add and subtract rational expressions
- Simplify complex rational expressions

Section R.9 Addition and Multiplication Properties of Equality (49)

- Determine if a given value is a solution to an equation
- Solve equations using properties of equality

Chapter 1: Equations, Inequalities, and Applications

Section 1.1 Linear and Rational Equations (61)

- Find the least common denominator of an expression
- Determine whether equations are linear or nonlinear
- Solve linear equations with integer coefficients
- Solve linear equations involving fractions
- Solve linear equations involving decimals
- Solve rational equations that lead to linear equations

Section 1.4 Quadratic Equations (53)

- Simplify radical expressions
- Factor trinomials
- Solve quadratic equations by factoring
- Solve quadratic equations using the square root property
- Solve quadratic equations using the quadratic formula
- Use the discriminant to determine the type of solutions of a quadratic equation

Section 1.6 Other Types of Equations (37)

- Solve higher-order polynomial equations
- Solve equations involving radicals

Section 1.7 Linear Inequalities (49)

- Solve linear inequalities in one variable
- Solve three-part inequalities in one variable
- Solve compound inequalities in one variable

Section 1.8 Absolute Value Equations and Inequalities (29)

- Solve absolute value equations

Chapter 2: The Rectangular Coordinate System, Lines, and Circles

Section 2.1 The Rectangular Coordinate System (21)

- Graph equations by plotting points
- Find intercepts of graphs from equations
- Find the midpoint of a line segment using the midpoint formula
- Find the distance between two points using the distance formula

Section 2.3 Lines (50)

- Find the slopes of lines that pass through two given points
- Sketch the graph of a line given a point and the slope
- Find the equation of a line in point-slope form
- Find the equation of a line in slope-intercept form
- Find the equation of a line in standard form
- Find the slope and the y -intercept of a line in standard form and sketch the graph
- Sketch the graphs of lines given in standard form by plotting intercepts
- Find equations of horizontal lines and vertical lines

Section 2.4 Parallel and Perpendicular Lines (13)

- Understand the definition of parallel lines
- Understand the definition of perpendicular lines
- Determine whether two lines are parallel, perpendicular, or neither

Chapter 3: Functions

Section 3.1 Relations and Functions (27)

- Understand the definitions of relations and functions
- Determine whether equations represent functions
- Use function notation
- Evaluate functions at given values

Section 3.2 Properties of a Function's Graph (24)

- Determine the intercepts of a function
- Determine the domain and range of functions from their graphs
- Determine where functions are increasing, decreasing, or constant

Section 3.3 Graphs of Basic Functions; Piecewise Functions (33)

- Sketch the graphs of the basic functions
- Sketch graphs of basic functions with restricted domains

Section 3.4 Transformations of Functions (67)

- Use vertical shifts to graph functions
- Use horizontal shifts to graph functions
- Use reflections to graph functions
- Use vertical stretches and compressions to graph functions
- Use combinations of transformations to graph functions

Chapter 5: Exponential and Logarithmic Functions and Equations

Section 5.1 Exponential Functions (30)

Understand the characteristics of exponential functions
Solve exponential equations by relating the bases

Section 5.2 Logarithmic Functions (44)

Understand the definition of logarithmic functions
Evaluate logarithmic expressions
Understand the properties of logarithms
Understand the characteristics of logarithmic functions
Find the domain of logarithmic functions

Chapter 12: Systems of Equations

Section 12.1 Systems of Linear Equations in Two Variables (27)

Verify solutions to a system of linear equations in two variables
Solve systems of linear equations using the substitution method
Solve systems of linear equations using the elimination method
Solve applications using a system of linear equations