

LSU Dual Enrollment Program for Math

Math 1015 Basic Mathematics COURSE PROFILE 6-4-2025

LA BOARD OF REGENTS COMMON COURSE NUMBER: CMAT 1203 Applied Algebra

ETEXT: *Algebra & Trigonometry with Interactive Assessments, 4e, MyLab Math*, Kirk Trigsted

HIGH SCHOOL COURSE CODE: 160375

CHAPTERS

R – Review

1 – Equations, Inequalities, and Applications

2 – The Rectangular Coordinate System, Lines, and Circles

3 – Functions

5 – Exponential and Logarithmic Functions and Equations

6 – Introduction to Trigonometric Functions

9 – Applications of Trigonometry

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.2 A Review of Fractions and the Order of Operations (28)

Use the properties of real numbers to rewrite expressions

Use the order of operations to simplify numeric and algebraic expressions

Evaluate algebraic expressions for given values of variables

Section R.3 Integer Exponents (25)

Evaluate expressions containing exponents

Use properties of exponents to simplify exponential expressions

Section R.5 Polynomials (20)

Add, subtract, and multiply polynomials

Section R.7 Factoring Polynomials (30)

Factor the GCF of an expression

Factor by grouping

Factor trinomials with a leading coefficient equal to one

Factor trinomials with a leading coefficient not equal to one

Factor the difference of two squares

Factor the sum and difference of two cubes

Factor perfect square trinomials

Section R.8 Rational Expressions (18)

Reduce a rational expression to its lowest terms

Add, subtract, multiply, and divide rational expressions

Simplify complex rational expressions

Sections R.4 and R.6 Roots, Radicals, and Rational Exponents (28)

Simplify radical expressions

Understand the meaning of $a^{\frac{m}{n}}$

Simplify expressions containing rational exponents

Add, subtract, and multiply radical expressions

Rationalize denominators of radical expressions

Chapter 1: Equations, Inequalities, and Applications

Section 1.1 Linear and Rational Equations (22)

Determine whether equations are linear or nonlinear

Solve linear equations with integer coefficients

Solve linear equations involving fractions

Solve rational equations that lead to linear equations

Section 1.2 Applications of Equations (16)

Set up and solve applied problems involving linear and rational equations

Section 1.4 Quadratic Equations (26)

Solve quadratic equations by factoring

Solve quadratic equations using the square root property

Solve quadratic equations by completing the square

Solve quadratic equations by using the quadratic formula

Section 1.6 Other Types of Equations (16)

Solve higher-order polynomial equations

Solve equations involving single radicals

Solve equations that are quadratic in form

Section 1.7 Linear Inequalities (21)

Solve linear inequalities in one variable

Solve three-part inequalities in one variable

Solve compound inequalities in one variable

Section 1.9 Polynomial and Rational Inequalities (17)

Solve polynomial inequalities

Solve rational inequalities

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

Section 2.1 The Rectangular Coordinate System (11)

Use the distance and midpoint formulas

Section 2.3 Lines (22)

Find the slopes of lines that pass through two given points

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 (7)

Determine whether lines are parallel, perpendicular, or neither

Chapter 3: Functions

Section 3.1 Relations and Functions (15)

Find the domain and range of relations, and determine if relations represent functions

Use function notation to identify points that lie on graphs of functions

Evaluate functions at given values

Classify functions as polynomials, rational functions, or root functions, and find their domains

Chapter 5: Exponential and Logarithmic Functions and Equations

Section 5.1a Exponential Functions (15)

Evaluate exponential expressions

Sketch the graphs of exponential functions

Solve exponential equations by relating the bases

Section 5.2 Logarithmic Functions (12)

Change exponential expressions into logarithmic expressions

Change logarithmic expressions into exponential expressions

Use properties of logarithms to evaluate expressions

Section 5.3 Properties of Logarithms (18)

Expand logarithmic expressions using properties of logarithms

Condense logarithmic expressions using properties of logarithms

Use the change of base formula to approximate logarithmic expressions

Section 5.4 Exponential and Logarithmic Equations (10)

Solve exponential equations

Solve logarithmic equations

Section 5.5 Applications of Exponential and Logarithmic Functions (13)

Solve applications involving compound interest

Solve equations of populations that obey the law of uninhibited growth or uninhibited decay

Chapter 6: An Introduction to Trigonometric Functions

Section 6.1 An Introduction to Angles: Degree and Radian Measure (31)

Understand degree measure

Understand radian measure

Convert between degree measure and radian measure

Find coterminal angles using degree measure

Find coterminal angles using radian measure

Section 6.4 Right Triangle Trigonometry (24)

- Use the right triangle definitions of the trigonometric functions
- Use the fundamental trigonometric identities
- Use the special right triangles
- Find the exact value of the trigonometric functions of the special angles
- Use a calculator to find the value of the trigonometric functions of any angle

Section 6.5 Trigonometric Functions of General Angles (35)

- Understand the four families of special angles
- Find the exact value of the trigonometric functions for general angles
- Understand the signs of the trigonometric functions
- Find a reference angle
- Evaluate trigonometric functions of angles belonging to special families

Chapter 9: Applications of Trigonometry

Section 9.1 Right Triangle Applications (10)

- Solve right triangles
- Solve applied problems using right triangles

Section 9.2 The Law of Sines (13)

- Determine if the Law of Sines can be used to solve an oblique triangle
- Use the Law of Sines to solve the SAA case or the ASA case
- Use the Law of Sines to solve the SSA (ambiguous) case

Section 9.3 The Law of Cosines (13)

- Determine whether Law of Sines or Cosines should be used to solve an oblique triangle
- Use the Law of Cosines to solve the SAS case
- Use the Law of Cosines to solve the SSS case
- Use the Law of Cosines to solve applied problems involving oblique triangles

Section 9.4 Area of Triangles (11)

- Determine the area of oblique triangles
- Use Heron's Formula to determine the area of an SSS triangle
- Solve applied problems involving the area of triangles

Chapter 12: Systems of Equations

Section 12.1 Systems of Linear Equations in Two Variables (9)

- Solve systems of equations using substitution or elimination

Section 12.7 Systems of Inequalities (11)

- Graph linear inequalities in two variables
- Graph systems of linear inequalities in two variables