

MAT 085 Intermediate Algebra**3 Credits****Description:**

Includes rational expressions, radical expressions, rational exponents, graphing parabolas, inequalities, equations of lines, functions and applications, with emphasis on solving quadratic, rational, and radical equations.

Components: Lecture: 3 credit hours (45 contact hours).

Pre-requisite: MAT 065 or KCTCS placement examination.

Implementation: Fall 2012

Competencies/Student Outcomes:

Upon completion of this course, the student will:

1. Write equations of lines from given data, verbal descriptions, and graphs.
2. Write the equation of a line parallel or perpendicular to a given line.
3. Solve absolute value equations.
4. Solve compound inequalities.
5. Solve and graph absolute value inequalities.
6. Graph linear inequalities in two variables.
7. Simplify rational expressions.
8. Add, subtract, multiply, and divide rational expressions.
9. Solve equations involving rational expressions.
10. Convert between radical and rational exponent form.
11. Simplify radicals.
12. Add, subtract, multiply, and divide radicals.
13. Solve equations involving radicals.
14. Solve quadratic equations with complex solutions using completing the square and the quadratic formula.
15. Graph parabolas by finding the vertex, finding the axis of symmetry, and plotting points.
16. Evaluate a function using function notation.
17. Determine whether a given correspondence or graph represents a function.
18. Determine the domain of a function.
19. Identify the range of a function.
20. Model and solve applications based on linear, quadratic, and exponential functions.

Outline:

- I. Equations of Lines
 - A. Writing Equations of Lines Given Data, Verbal Descriptions, and Graphs
 - B. Writing Equations of Parallel or Perpendicular Lines
- II. Absolute Value and Inequalities
 - A. Absolute Value Equations
 - B. Compound Inequalities
 - C. Absolute Value Inequalities
 - D. Graphing Linear Inequalities in Two Variables
- III. Rational Expressions
 - A. Simplifying Rational Expressions
 - B. Basic Operations
 - C. Solving Equations
- IV. Radicals
 - A. Converting Between Radical and Rational Exponent Form
 - B. Simplifying Radicals
 - C. Basic Operations
 - D. Solving Equations
- V. Quadratics
 - A. Completing the Square

- B. Quadratic Formula
 - C. Complex Solutions
 - D. Graphing Parabolas
- VI. Functions
- A. Function Notation
 - B. Evaluating Functions
 - C. Identifying Functions
 - D. Domain and Range

Learning Resources:

Martin-Gay, E. (2009). *Intermediate Algebra* (5th ed.). Boston, MA: Pearson.

Dates of Actions:

Approved: March 2012