

Mathematics 137

Intermediate Algebra

Instructor: Roger Williams

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Text: Intermediate Algebra 4th edition; author Jay Lehman; Prentice Hall

Prerequisite: MAT 095 or equivalent Beginning Algebra

Description: Topics Functions, Systems of equations, Rational expressions, Equations involving fractions, Operations with radicals, Rational exponents, Quadratic functions and equations, Exponential and logarithm equations, right triangle functions

Purpose: To develop an algebraic TOOLBOX

Tests: There will be four tests
1st test in class 5, covers topics discussed in classes 1, 2, 3
2nd test in class 8, covers topics discussed in classes 4, 5, 6
3rd test in class 11, covers topics discussed in classes 7, 8, 9
4th test in last class, will cover all topics

Grading: A (94 - 100) A(minus) (90 - 93)
B(plus) (87 - 89) B (83 - 86) B(minus) (80 - 82)
C(plus) (77 - 79) C (73 - 76) C(minus) (70 - 72)
D(plus) (67 - 69) D (63 - 66) D(minus) (60 - 62)
F (59 or less)

WITHDRAWAL

if you find it necessary to discontinue taking a course, you must formally withdraw from the course. Contact the registrar's office so that you can complete a withdrawal form at the time of withdrawal. Students who stop attending class and who do not withdraw will be assigned a grade of F. This is school policy.

Quick Review

Linear Equation
Graph solutions to a linear equation

Sections

Section 1.5, 1.6	Section 9.1, 9.2, 9.5
Section 2.1, 2.2, 2.3	Section 4.1 to 4.5
Topics in trigonometry	Section 5.2 to 5.6
Section 3.2, 3.3	
Section 8.1, 8.2, 8.3, 8.5, 8.6	
Section 7.1, 7.2, 7.3, 7.5, 7.6, 7.7	

MAT137 Course Outcomes

1. Factor an algebraic expression using a combination of greatest common factor, difference of two squares, sum or difference of two cubes, and/or trinomial factoring .
2. Use factoring procedures to solve equations and problems.
3. Solve compound linear inequalities of the form $C < ax + b < d$. Express answer algebraically, graphically, and using interval notation.
4. Isolate a particular variable in a literal equation.
5. Use quadratic formula to find exact values of a quadratic equation with irrational or imaginary solutions. Approximate the irrational solutions.
6. Solve basic exponential and logarithmic equations.
7. Evaluate basic logarithmic expressions, and convert between logarithmic and exponential form.
8. Solve an exponential equation that requires the use of logarithms.

9. Graph a quadratic function by finding the vertex, x- and y-intercepts.
10. Relate the discriminant in the quadratic formula to the graph of a parabola.
11. Graph a basic exponential or logarithmic function.
12. Know the graphical relationship between exponential and logarithmic functions.
13. Express the slope as a rate of change using appropriate units.
14. Write the equation of a linear function given data. Use functional notation in the answer.
15. Write the equation of an exponential function given data. Use functional notation in the answer.
16. Solve a 2×2 and 3×3 system of equations.
17. State the domain of linear, quadratic, exponential and logarithmic functions.

18. Evaluate functions using numerical and algebraic values.
19. Identify domain (inputs) and range (outputs) graphically for basic functions.
20. Interpret functional notation in a variety of application problems.
21. Determine if a relation is a function by looking at a graph, table, or equation.
22. Solve a rational equation and check for extraneous solutions.
23. Solve a radical equation that produces a second-degree equation. Check for extraneous solutions.
24. Know and apply the rules of integer and fractional exponents

25. Add, subtract, multiply, divide rational expressions. Reduce the answers.
26. Simplify a complex fraction.
27. Know the meaning of rational exponents and their relationship to radical form.
28. Simplify radical expressions with emphasis on cube roots and lower.
29. Rewrite radical expressions by rationalizing numerator or denominator.
30. Add, subtract, multiply, and divide radical expressions.
31. Solve application problems involving the Pythagorean Theorem.
32. Given a quadratic model, find and interpret the maximum or minimum values, and the intercepts.
33. Solve an application problem involving quadratic equations.
34. Solve an application problem that involves rational expressions.
35. Solve an application problem involving a given exponential or logarithmic model.
36. Solve applications involving linear systems.

37. Find the six trigonometric values of an acute angle
38. Solve triangles using right triangle trig, distinguish between the angle of depression and elevation.
39. Solve applied problems using right triangle trigonometry