

Exam 1 Review

Research has shown that students who develop their own study guides for exam preparation do better on their exams than students who use a study guide that has been developed for them. Thus, this is simply a topic list of the content we have covered in preparation for Exam 1. Hopefully you can use this topic list as a tool for developing your own study guide.

Chapter 1, Section 1: Concepts:

- The number system.
- The real number line.
- Arithmetic.
- Applications.

Concepts:

- Number Lines
- The Definitions of Absolute Value
- Absolute Value Equations and Inequalities
- Solving Equations with One Variable Type - The Algebraic Approach
- Solving Equations with a Variable in the Denominator - The Algebraic Approach
- Solving Power Equations - The Algebraic Approach
- Solving Quadratic Equations - The Algebraic Approach
 - The Zero Product Property
 - The Quadratic Formula
 - Completing the Square
- Solving Quadratic Type Equations

(Sections 1.1-1.2)

Concepts:

- The Cartesian Coordinate System
- Graphs of Equations in Two Variables
- x -intercepts and y -intercepts
- Distance in Two Dimensions and the Pythagorean Theorem
- Equations of Circles
 - The Distance Formula and the Standard Form for an Equation of a Circle.
 - Writing Equations of Circles
 - Identifying Equations of Circles
- Midpoints
 - Finding Midpoints
 - Verifying that a Point Is the Midpoint of a Line Segment

(Sections 1.3)

Concepts:

- Steepness
- Rates of Change
- Lines
 - The Slope and the Slope as a Rate of Change
 - Linear Equations
 - Point-Slope Form
 - Vertical and Horizontal Lines
 - Parallel Lines and Perpendicular Lines
- Using 2-Dimensional Graphs to Approximate Solutions of Equations in One Variable.
 - The Intersection Method
 - The Intercept Method

(Section 1.4)

Concepts:

- Advantages and Disadvantages of Graphing Calculators
- How Do Calculators Sketch Graphs?
- When Do Calculators Produce Incorrect Graphs?
- The Greatest Integer Function
- Graphing Calculator Skills
 - Locating the Graph (TRACE AND TABLE)
 - Changing the Viewing Window (WINDOW)
 - Connected Mode vs. Dot Mode
 - The ZOOM Features
 - Finding Approximate Coordinates for Intersection Points
 - Finding Approximate Coordinates for x -intercepts
- The Intersection Method Revisited
- The Intercept Method Revisited

(Sections 2.1-2.2)

Concepts:

- Construct a Linear Model
- Gauge Accuracy of a Linear Model with Residuals
- Least Squares Linear Regression Line
- Interpret the Correlation Coefficient, r

(Section 2.5)

Concepts:

- The Definition of A Function
- Function Notation
- The Domain of a Function
- Functions from Tables

(Book section 3.1)

Concepts:

- Function Notation
- Piecewise-defined Functions
- The Domain of a Function
- The Difference Quotient

(Section 3.2)

Concepts:

- Graphs of Specific Functions
- The Domain and Range of a Function
- Sketching Piecewise Functions
- The Vertical Line Test
- Local Extrema (Maximums and Minimums)

(Section 3.3)