

Applied Calculus with Review | Table of Contents

Chapter 1: Functions and Their Graphs

1.1 Graphs of Equations

- Graphing
 - Graphing linear equations
 - Graph equations by plotting points
 - Find intercepts from a graph or equation
 - Test an equation for symmetry with respect to the (a) x-axis, (b) y-axis, and (c) origin

1.2 Functions

- Introducing Functions
 - Examining functions: definition, notation, evaluation
 - Find the difference quotient of a function
 - Find the domain of a function
 - Applying functions: cost, price, demand, revenue, profit

1.3 Graphs of Functions; Properties of Functions

- Properties of Functions
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 - Obtain information about a function from its graph
 - Obtain information about a function from its equation
 - Identify even and odd functions from a graph or equation
 - Use a graph to determine where a function is increasing, is decreasing, or is constant
 - Use a graph to locate local maxima and minima
 - Find the average rate of change of a function

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- Library of Functions
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 - Recognize and graph piecewise-defined functions

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 - Use the maximum or the minimum value of a quadratic function to solve applied problems

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- Exponential Functions
 - Evaluate exponential functions
 - Graph exponential functions
 - Define the number e
 - Solve exponential equations

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 - Change logarithmic expressions to exponential expressions
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- Properties of Logarithms
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- Finding Limits Using Tables and Graphs
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 - Find the limit of a power or a root
 - Find the limit of a polynomial
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- Find the limit of a quotient and average rate of change

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- One-Sided Limits and Continuity
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 - Determine continuity

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- Product and Quotient Formulas
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- The Power Rule
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- Higher-Order Derivatives
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- Find first and second derivatives
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 - Make use of implicit differentiation

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 - Graph polynomial functions

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- Elasticity of Demand
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- Related Rates
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- The Differential; Linear Approximations
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- Integration Techniques (By Parts)
 - Integration by parts

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- Approximating Definite Integrals
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- Rectangular Coordinates in Space
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- Functions and Their Graphs
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- Lagrange Multipliers
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 - Find the volume of a solid

Review for Applied Calculus

Chapter 1: Introduction to Real Numbers

1.1 Real Numbers

- Understand and Use Properties of Real Numbers
 - Understand the multiplication and division properties of zero
 - Use the commutative and associative properties
 - Identify additive and multiplicative inverses of a number
 - Classifying Real Numbers
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- Identify real numbers
- Identify rational and irrational numbers
- Introduction to Fractions
 - Locate fractions on a number line and write inequality statements involving fractions
 - Find equivalent fractions
 - Find reciprocals of fractions
 - Understand fractions and their models
 - Simplify a fraction
 - Identify when fractions are equivalent
- Operations with Fractions
 - Add and subtract fractions with unlike denominators
 - Add and subtract fractions with like denominators
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 - Simplify expressions with integers using order of operations
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- Evaluate Expressions
 - Evaluate variable expressions with fractions
 - Evaluate an expression with factorials
 - Evaluate an expression
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 - Translate English phrases from applications into algebraic expressions
 - Translate an English phrase to an algebraic expression

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 - Identify coefficients and identify and combine like terms
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- Operations with Polynomials
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- Translate English statements into Expressions or Equations
 - Translate an English sentence to an algebraic equation and solve using the division and multiplication properties of equality
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 - Translate algebraic expressions, equations, and inequalities into English and recognize expressions and equations

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 - Use the subtraction and addition properties of equality to solve application problems
 - Solve an equation using the subtraction and addition properties of equality
 - Solve an equation that requires simplification using the subtraction and addition properties of equality
 - Solve an equation involving fractions or decimals using the subtraction and addition properties of equality
 - Solve Equations using the Multiplication and Division Properties of Equality
 - Use the division and multiplication properties of equality to solve application problems
 - Solve an equation using the division and multiplication properties of equality
 - Solve an equation that requires simplification using the division and multiplication properties of equality
 - Solve an equation involving fractions or decimals using the division and multiplication properties of equality
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 - Solve an equation using the distributive property with variables on one side
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 - Solve equations using cross multiplication
 - Classify equations as conditional, identity, or a contradiction
 - Solve an equation with variables on both sides
 - Solve an equation with constants on both sides
 - Solve an equation with constants and variables on both sides
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 - Solve an equation involving decimals by clearing the decimals
 - Solve an equation involving decimals with variables on both sides
 - Solve an equation involving fractions with variables on both sides
 - Solve an equation involving fractions by eliminating the fractions
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3.3 Use Formulas While Solving Equations

- Use Formulas While Solving Equations
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 - Use a formula

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 - Translate and solve basic percent equations
 - Solve basic applications of percent

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 - Graph an inequality on the number line
 - Express an inequality using interval notation
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 - Translate an English sentence into an inequality and solve
 - Solve one-step applications with linear inequalities
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