Introduction to College Math

Scope and Sequence

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I. **Logic (23 days)**
A. Sentences
B. Properties
C. Statements
D. Principles, Laws, Theorems
E. Necessary and Sufficient Conditions
F. Deductive Reasoning
G. Truth Tables
H. Equivalences
I. Theorems
J. Set Theory
K. Cartesian Product

II. **Real Numbers (12 days)**
A. Properties
B. Components
C. Fractions
D. Odd/even
E. Factors and Divisibility Rules
F. Absolute Value
G. Integers
H. Inequalities
I. Scientific Notation
J. Unit Conversions

III. **Equations (15 days)**
A. Equations
B. Linear Equations
C. Factor Theorem
D. Remainder Theorem
E. Simultaneous Linear Equations
F. Dependent Equations
G. Parallel vs. Perpendicular Lines

H. Absolute Value Equations
I. Linear Inequalities
J. Piecewise Functions
K. Complex Numbers

IV. **Functions (17 days)**
A. Quadratic Equations
B. Relations and Graphs
C. Functions
D. Composition of Functions
E. Linear Functions
F. Linear Equations
G. Transformations of Graphs
H. Exponents
I. Exponential Equations
J. Logarithms
K. Linear and Exponential Growth

V. **Probability (22 days)**
A. Sample Spaces
B. The Counting Principle
C. Factorials
D. Permutations
E. Combinations
F. Basic Formula
G. Probability using Permutations and Combinations
H. Odds
I. Mutually Exclusive Events
J. Complementary Events
K. Non-mutually Exclusive Events
L. Conditional Probability
M. Independent Events
N. Expected Value

Midterm Review and Exam (4 days)

VI. **Statistics (20 days)**
A. Measures of Central Tendency
B. Variety of Distributions

C. Measures of Variability
D. Normal Distributions
E. Data Analysis
F. Bar Graphs
G. Histograms
H. Line Graphs
I. Circle Graphs
J. Stem Plots
K. Bivariate Data
L. Interpreting Scatterplots

VII. **Financial Math (24 days)**
A. Rates
B. Percents
C. Taxes
D. Markups and Markdowns
E. Types of Interest
F. Simple Interest
G. Compound Interest
H. Compound Amount Formula
I. Future Value and Maturity Value
J. Present Value
K. Inflation

VIII. **Geometry (18 days)**
A. Triangles
B. Pythagorean Theorem
C. Quadrilaterals
D. Similar Polygons
E. Circles
F. Area and Perimeter

Final Exam Review and Test (7 days)

Total of 162 days of instruction and assessments