

Timmons, Fundamentals of Algebraic Modeling, TOC

1. A REVIEW OF ALGEBRA FUNDAMENTALS.

Mathematical Models. Real Numbers and Mathematical Equations. Solving Linear Equations. Formulas. Ratio and Proportion. Percents. Word Problem Strategies.

2. GRAPHING.

Rectangular Coordinate System. Graphing Linear Equations. Slope. Writing Equations of Lines. Applications and Uses of Graphs.

3. FUNCTIONS.

Functions. Using Function Notation. Linear Functions as Models. Direct and Inverse Variation. Quadratic Functions and Power Functions as Models. Exponential Functions as Models.

4. MATHEMATICAL MODELS IN CONSUMER MATH.

Mathematical Models in the Business World. Mathematical Models in Banking. Mathematical Models in Consumer Credit. Mathematical Models in Purchasing an Automobile. Mathematical Models in Purchasing a Home. Mathematical Models in Insurance Options and Rates. Mathematical Models in Stocks, Mutual Funds, and Bonds. Mathematical Models in Personal Income

5. ADDITIONAL APPLICATIONS OF ALGEBRAIC MODELING.

Models and Patterns in Plane Geometry. Models and Patterns in Right Triangles. Models and Patterns in Art and Architecture: Perspective and Symmetry. Models and Patterns in Art, Architecture, and Nature: Scale and Proportion. Models and Patterns in Music.

6. MODELING WITH SYSTEMS OF EQUATIONS.

Solving Systems by Graphing. Solving Systems Algebraically Applications of Linear Systems. Systems of Nonlinear Functions.

7. MODELING WITH STATISTICS.

Sets and Set Theory. What is Probability. Theoretical Probability and Odds. Tree Diagrams. Or and And Problems. The Counting Principle, Permutations and Combinations

8. MODELING WITH STATISTICS.

Introduction to Statistics. Descriptive Statistics. Organizing and Displaying Data. Variation. Normal Curve. Scatter Diagrams and Linear Regression.

APPENDICES.

Commonly Used Calculator Keys.

Calculator Practice

Formulas Used in This Text.

Levels of Data in Statistics.