

# Advanced Quantitative Reasoning

Mathematics for the World Around Us

## *Texas Edition*

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Available for the 2013–2014 School Year

Author Team:

Gregory D. Foley, Thomas R. Butts, Stephen W. Phelps, & Daniel A. Showalter

### **I. Numerical Reasoning**

1. Using Problem-Solving Strategies
2. Using Numbers and Quantities
3. Using Percent, Sequences, and Recursion
4. Developing Financial Literacy
5. Using Ratios, Rates, and Proportion
6. Using Averages, Weighted Averages, and Indices
7. Using Codes, Identification Numbers, and Check Digits
8. Using Large and Small Numbers, Logarithms, and Orders of Magnitude
9. Using Matrices and Matrix Operations
10. Conducting a Quantitative Reasoning Project

### **II. Probability and Statistical Reasoning**

11. Using Counting Principles, Permutations, and Combinations
12. Reasoning With Probability
13. Using Expected Values and Odds
14. Making Sense of Statistical Information
15. Designing a Statistical Study
16. Tabulating and Graphing Categorical Data to Make Informed Decisions
17. Using Summary Statistics to Make Informed Decisions
18. Using the Normal Distribution to Make Informed Decisions
19. Using and Misusing the Tools and Methods of Statistics
20. Conducting a Statistical Study

### **III. Modeling With Algebra and Discrete Mathematics**

21. Modeling With Sequences
22. Using Linear Difference Equations
23. Using Proportional Models
24. Using Linear Functions and Correlation
25. Using Piecewise-Linear and Step Functions
26. Using Power Functions
27. Using Exponential and Logistic Functions
28. Using Logarithms and Re-Expressing Data
29. Using Financial Models
30. Using Periodic Models and Sinusoidal Functions
31. Using Quadratic and Other Polynomial Functions
32. Conducting an Algebraic Modeling Project

### **IV. Modeling With Geometry and Trigonometry**

33. Representing Objects in Three Dimensions
34. Transforming Objects in Three Dimensions
35. Using Basic Trigonometry in Two and Three Dimensions
36. Exploring the Geometry of a Cube
37. Exploring the Geometry of a Sphere
38. Exploring Taxicab Geometry
39. Conducting a Geometric Modeling Project

### **V. Final Project**