A Correlation of

Thinking Mathematically
Blitzer, 5th Edition
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To the

Alabama Course of Study
Mathematics
Discrete Mathematics

Thinking Mathematically, 5th Edition © 2011 Correlated to
Alabama Course of Study: Mathematics - Discrete Mathematics

Introduction

The following correlation demonstrates the alignment of content between *Thinking Mathematically*, *5th Edition, ©2011* and the Alabama Course of Study: Mathematics, Discrete Mathematics. This document contains references to the page numbers from the Student and Teacher's Editions.

Thinking Mathematically provides a general survey of mathematical topics that are useful in our contemporary world. The author's purpose ion writing the book was to show students how mathematics can be applied to their lives in interesting, enjoyable, and meaningful ways. The book's variety of topics and flexibility of sequence make it appropriate for a one- or two-term course in liberal arts mathematics, quantitative reasoning, finite mathematics, mathematics for education majors, as well as for courses specifically designed to meet state-mandated requirements in mathematics.

Thinking Mathematically has four major goals:

1. To help students acquire knowledge of fundamental mathematics.

2. To show students how mathematics can solve authentic problem that apply to their lives.

3. To enable students to understand and reason with quantitative issues and mathematical ideas they are likely to encounter in college, career, and life.

4. To enable students to develop problem-solving skills, while fostering critical thinking, within an interesting setting.

New to the Fifth Edition

New Applications and Real-World Data. This edition contains 265 worked-out examples and application exercises based on new data sets.

"Make Sense?" Classroom Discussion Exercises. Each exercise set contains four Critical Thinking exercises intended for classroom discussion in order to engage participation in the learning process.

773 New Examples and Exercises. The Fifth Edition contains 26 detailed worked-out examples involving new data, 239 new application exercises, 178 new practice exercises, 308 "Make Sense?" discussion exercises, and 22 new exercises that appear in the various other categories of exercise sets.

New Chapter-Opening and Section-Opening Scenarios. Every chapter and every section open with a scenario based on an application. These scenarios are visually supported by a new collection on intriguing silhouetted photos to help motivate student interest.

Applications-Based MyMathLab Questions. Emphasizing the highly relevant applications for which the book is known, new assignable MyMathLab questions are available that correlate to chapter- and section-opening applications.

This document demonstrates the high degree of success students will achieve by using T**hinking Mathematically, 5th Edition.**

DISCRETE MATHEMATICS
Discrete Mathematics is a course designed for students who have successfully completed the Algebra II with Trigonometry course and who choose not to continue mathematics study in the Precalculus or Probability and Statistics courses. This course may be offered as an elective for students who have completed the four mathematics requirements for graduation. Discrete Mathematics expands upon the topics of matrices, combinational reasoning, counting techniques, algorithms, sequences, series, and their applications. Students are expected to work in both individual and group settings to apply problem-solving strategies and to incorporate technological tools that extend beyond traditional instructional practices. The prerequisites for this course are Algebra I, Geometry, and Algebra II with Trigonometry.

Number and Quantity

ALABAMA COURSE OF STUDY DISCRETE MATHEMATICS	*THINKING MATHEMATICALLY* 5TH EDITION © 2011
1. Analyze topics from elementary number theory, including perfect numbers and prime numbers, to determine properties of integers.	**SE/TE:** 228-249
2. Determine characteristics of sequences, including the Fibonacci sequence, the triangular numbers, and pentagonal numbers.	**SE/TE:** 2-12, 292-301
3. Use the recursive process and difference equations to create fractals, population growth models, sequences, series, and compound interest models.	**SE/TE:** 292-301
4. Convert between base ten and other bases.	**SE/TE:** 201-206

Algebra

5. Determine results of operations upon 3 x 3 and larger matrices, including matrix addition and multiplication of a matrix by a matrix, vector, or scalar.	The opportunity to introduce this objective is available. See the following: pages **SE/TE:** 44-50
6. Analyze determinants and inverses of 2 x 2, 3 x 3, and larger matrices to determine the nature of the solution set of the corresponding system of equations, including solving systems of equations in three variables by echelon row reduction and matrix inverse.	The opportunity to introduce this objective is available. See the following: pages **SE/TE:** 44-50
7. Solve problems through investigation and application of existence and nonexistence of Euler paths, Euler circuits, Hamilton paths, and Hamilton circuits.	**SE/TE:** 830-851
a. Developing optimal solutions of application-based problems using existing and student-created algorithms	**SE/TE:** 416-421, 842-851
8. Apply algorithms, including Kruskal's and Prim's, relating to minimum weight spanning trees, networks, flows, and Steiner trees.	**SE/TE:** 852-859

SE = Student Edition   TE = Teacher's Edition

a. Using shortest path techniques to find optimal shipping routes	**SE/TE:** 820-841
9. Determine a minimum project time using algorithms to schedule tasks in order, including critical path analysis, the list-processing algorithm, and student-created algorithms.	**SE/TE:** 26-36, 820-851
Geometry	
10. Use vertex-coloring techniques and matching techniques to solve application-based problems.	**SE/TE:** 820-841
11. Solve application-based logic problems using Venn diagrams, truth tables, and matrices.	**SE/TE:** 65-76, 123-147
Statistics and Probability	
12. Use combinatorial reasoning and counting techniques to solve application-based problems.	**SE/TE:** 602-620
13. Analyze election data to compare election methods and voting apportionment, including determining strength within specific groups.	**SE/TE:** 768-779, 791-803