



Adventist Education

A JOURNEY TO EXCELLENCE

Algebra I

2010

**SECONDARY MATHEMATICS STANDARDS
IN SEVENTH-DAY ADVENTIST SCHOOLS**

OFFICE OF EDUCATION | North American Division Seventh-day Adventist Church

Mathematics Standards—Algebra I

COURSE FOCUS [Apply the following to each content standard.]

- AI.1 Identify SDA Christian principles and values in correlation with mathematics.
 - AI.1.1 Recognize God as Creator and Sustainer of an ordered universe.
 - AI.1.2 Value God’s inspired writings and created works as a revelation of His precision, accuracy, and exactness.
 - AI.1.3 Develop accountability as expressed in God’s word and laws.
 - AI.1.4 Employ Christian principles as a basis for learning and growth.
 - AI.1.5 Broaden intellectual abilities through the study of mathematics.
 - AI.1.6 Make biblically-based choices when dealing with mathematical data.
 - AI.1.7 Apply biblical principles of Christian morality, integrity, and ethical behavior to mathematical processes.

COURSE ABILITIES [Apply the following to each content standard.]

- AI.2 Develop abilities in mathematics.
 - AI.2.1 Understand mathematical concepts (number sense, algebraic and geometric thinking, measurement, data analysis, and probability).
 - AI.2.2 Utilize the problem-solving process (explore, plan, solve, verify).
 - AI.2.3 Develop higher thinking skills (analyze, evaluate, reason, classify, predict, generalize, solve, decide, relate, interpret, simplify, model, synthesize).
- AI.3 Be able to apply math knowledge and skills to a variety of purposes.
 - AI.3.1 Use a variety of strategies in the problem-solving process (patterns, tables, diagrams, etc.).
 - AI.3.2 Conduct research (locate, observe/gather, analyze, conclude).
 - AI.3.3 Perform calculations with and without technology in life situations.
 - AI.3.4 Read critically and communicate proficiently with mathematical vocabulary.

COURSE CONTENT [understand, represent, apply, analyze]

- AI.4 Be able to understand concepts involving real numbers.
 - AI.4.1 Simplify expressions using the order of operations, including properties of exponents, square roots, and absolute value.
 - AI.4.2 Identify numbers and relationships among numbers (properties, equations, inequalities, ratios, proportions, unit analysis, etc.).
- AI.5 Be able to represent mathematical situations using algebraic symbols and models.
 - AI.5.1 Use and evaluate expressions involving variables.
 - AI.5.2 Write and solve equations, systems of equations, and inequalities from written and oral expression, recognizing equivalent forms.
 - AI.5.3 Identify, graph, solve, and interpret linear and quadratic functions, including the concept of variation.
 - AI.5.4 Apply basic concepts of statistics and probability (mean, median, mode, range).
- AI.6 Be able to apply appropriate techniques, tools, and formulas to interpret and solve problems.
 - AI.6.1 Calculate measurable attributes of figures (degrees of angles, lengths, perimeter, area, volume).
 - AI.6.2 Demonstrate mathematical proficiency using technology when appropriate.
 - AI.6.3 Use and manipulate given formulas to solve a variety of problems (slope, distance, area, volume, perimeter, midpoint, etc.).
 - AI.6.4 Perform operations involving polynomials.
 - AI.6.5 Solve consumer-related problems (profit, loss, sales tax, discount, interest, etc.).
- AI.7 Be able to analyze results and draw appropriate conclusions.
 - AI.7.1 Find and interpret information from graphs, charts, and numerical data.
 - AI.7.2 Predict patterns and generalize trends.
 - AI.7.3 Judge meaning, utility, and reasonableness of findings in a variety of situations, including those carried out by technology.