2018 Mathematics Standards—Algebra I

**Course Focus (Apply the following to each content standard.)**

**AI.1 Identify the principles of SDA Christian 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). **MP.7**

AI.2.2 Utilize the problem-solving process (explore, plan, solve, verify). **MP.1, MP.2**

AI.2.3 Develop higher-order thinking skills (analyze, evaluate, reason, classify, predict, generalize, solve, decide,

relate, interpret, simplify, model, synthesize). **MP.2, MP.3, MP.4**

AI.2.4 Attend to precision. **MP.6**

**AI.3 Be able to apply mathematical knowledge and skills to a variety of purposes.**

AI.3.1 Use a variety of strategies in the problem-solving process (i.e. patterns, tables, diagrams). **MP.7, MP.8**

AI.3.2 Conduct research (locate, observe/gather, analyze, conclude).

AI.3.3 Perform calculations with and without technology in life situations. **MP.5**

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 (i.e. real, rational, irrational)**.**

Al.4.3 Identify relationships and operations among numbers (i.e. properties, equations, inequalities, ratios, proportions, dimensional analysis, real vs. imaginary). **N-RN.3, A-REI.1**

**AI.5 Be able to represent mathematical situations using algebraic symbols and models.**

AI.5.1 Use and evaluate expressions involving variables. **A-SSE.1**

AI.5.2 Write equations, systems of equations, and inequalities from written and oral expression, recognizing equivalent forms. **A-SSE.2, A-CED.1,2, F-LE.2,3, G-GPE.5**

AI.5.3 Identify, graph, solve, and interpret linear/quadratic equations/inequalities and the concept of variation. **A-SSE.3, A-CED.2, A-REI.10,12, F-IF.8, F-LE.2,3**

AI.5.4 Recognize, evaluate, and interpret functions, including domain and range. **F-IF.1,2,4,5,6**

AI.5.5 Apply basic concepts of statistics and probability (i.e. measures of central tendency, plots, combinations, permutations) **S-ID.1,2,5, S-CP.1,9, S-MD.1,2,3,4,5**

**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). **N-Q.1,2,3**

AI.6.2 Demonstrate mathematical proficiency using technology when appropriate.

AI.6.3 Use and manipulate given formulas to solve a variety of problems (i.e. slope, distance, area, volume, perimeter, midpoint) **N-Q.1,2,3, A-CED.4, G-SRT.8**

AI.6.4 Perform operations involving polynomials and rational expressions. **A-APR.1,7**

AI.6.5 Solve consumer-related problems (i.e. profit/loss, sales tax, mark-up/discount, interest) **N-Q.1,2,3**

AI.6.6 Solve simple equations and inequalities in one variable (linear, quadratic, rational, radical, exponential, absolute value). **A-REI.2,3,4, F-IF.8**

AI.6.7 Solve systems of equations and inequalities using graphs and algebraic methods. **A-CED.1, A-REI.1,5,6**

**AI.7 Be able to analyze results and draw appropriate conclusions.**

AI.7.1 Find and interpret information from graphs, charts, and numerical data. **S-ID.6,7**

AI.7.2 Predict patterns and generalize trends (i.e. arithmetic/geometric sequences, scatter plots, linear regressions). **F-LE.1**

AI.7.3 Judge meaning, utility, and reasonableness of findings in a variety of situations, including those carried out by technology. **S-IC.2, S-MD.6,7**