

Mathematics

Key for “Province”:

Bold type – BC Big Ideas

Regular type – BC content (K-9)

K-9 Curricular Competencies used throughout all topics: reasoning and analyzing, understanding and solving, communicating and representing

Topics	Gr	North American Division	Province:
Numbers and Operations	9	AI.4 Be able to understand concepts involving real numbers.	(9) The principals and processes underlying operations with numbers apply equally to algebraic situations and can be described and analyzed: operations and exponents.
		AI.4.1 Simplify expressions using the order of operations, including properties of exponents, square roots, and absolute value.	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
		PA.4.2 Identify numbers (natural, whole, integers, rational, irrational, real) and operations of numbers (addition, subtraction, multiplication, division) including scientific notation.	(9) The principles and processes underlying operations with numbers apply equally to algebraic situations and can be described and analyzed: operations and exponents.
		AI.4.2 Identify numbers (i.e. real, rational, irrational).	(9) The principles and processes underlying operations with numbers apply equally to algebraic situations and can be described and analyzed: operations and exponents.
		AI.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	(9) The principles and processes underlying operations with numbers apply equally to algebraic situations and can be described and analyzed: operations and exponents.
Operations and Algebraic Thinking	9	AI.2.1 Understand mathematical concepts (number sense, algebraic and geometric thinking, measurement, data analysis, and probability). MP.7	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials. (9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
		AI.2.2 Utilize the problem-solving process (explore, plan, solve, verify). MP.1, MP.2	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials. (9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
		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	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials. (9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
		AI.2.4 Attend to precision. MP.6	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials. (9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
		AI.3.1 Use a variety of strategies in the problem-solving process (i.e. patterns, tables, diagrams). MP.7, MP.8	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.

	AI.3.2 Conduct research (locate, observe/gather, analyze, conclude).	(9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret: statistics in society.
	AI.3.3 Perform calculations with and without technology in life situations. MP.5	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials, financial literacy.
	AI.3.4 Read critically and communicate proficiently with mathematical vocabulary.	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials. (9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret: statistics in society.
	AI.5 Be able to represent mathematical situations using algebraic symbols and models.	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
	AI.5.1 Use and evaluate expressions involving variables. A-SSE.1	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
	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	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
	PA.5.3 Identify, graph, and interpret functions.	(9) Continuous linear relationships can be identified and represented in many connected ways to identify regularities and make generalizations: two-variable linear relations, and multi-step one-variable linear equations.
	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	(9) Continuous linear relationships can be identified and represented in many connected ways to identify regularities and make generalizations: two-variable linear relations, and multi-step one-variable linear equations.
	AI.5.4 Recognize, evaluate, and interpret functions, including domain and range. F-IF.1,2,4,5,6	(9) Continuous linear relationships can be identified and represented in many connected ways to identify regularities and make generalizations: two-variable linear relations, and multi-step one-variable linear equations.
	AI.6 Be able to apply appropriate techniques, tools, and formulas to interpret and solve problems.	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
	AI.6.2 Demonstrate mathematical proficiency using technology when appropriate.	(9) Continuous linear relationships can be identified and represented in many connected ways to identify regularities and make generalizations: two-variable linear relations, and multi-step one-variable linear equations.
	AI.6.4 Perform operations involving polynomials and rational expressions. A-APR.1,7	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
	AI.6.5 Solve consumer-related problems (i.e. profit/loss, sales tax, mark-up/discount, interest) N-Q.1,2,3	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials, and financial literacy.
	AI.6.6 Solve simple equations and inequalities in one variable (linear, quadratic, rational, radical, exponential, absolute value).	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.

		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	(9) Computational fluency and flexibility with numbers extend to operations with rational numbers: operations with polynomials.
Measurement	9	AI.6.1 Calculate measurable attributes of figures (degrees of angles, lengths, perimeter, area, volume). N-Q.1,2,3	(9) Similar shapes have proportional relationships that can be described, measured, and compared: spatial proportional reasoning.
		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	(9) Similar shapes have proportional relationships that can be described, measured, and compared: spatial proportional reasoning. (9) Continuous linear relationships can be identified and represented in many connected ways to identify regularities and make generalizations: multi-step one-variable linear equations, and two-variable linear relations.
Geometry	9	None	
Data Analysis, Statistics, and Probability	9	PA.5.4 Apply basic concepts of statistics and probability (mean, median, mode, range, box and whisker).	(9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret. *Statistics in society. *Apply multiple strategies to solve problems in both abstract and contextualized situations.
		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	(9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret. *Statistics in society. *Apply multiple strategies to solve problems in both abstract and contextualized situations.
		AI.7 Be able to analyze results and draw appropriate conclusions.	(9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret. *Statistics in society *Explain and justify mathematical ideas and decisions in many ways.
		AI.7.1 Find and interpret information from graphs, charts, and numerical data. S-ID.6,7	(9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret: statistics in society. *Use tools or technology to explore and create patterns and relationship, and text conjectures.
		AI.7.2 Predict patterns and generalize trends (i.e. arithmetic/geometric sequences, scatter plots, linear regressions). F-LE.1	(9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret: statistics in society. (9) Continuous linear relationship can be identified and represented in many connected ways to identify regularities and make generalizations. *Two-variable linear relations, and multi-step one-variable linear equations. *Visualize to explore and illustrate mathematical concepts and relationships. *Represent mathematical ideas in concrete, pictorial, and symbolic forms.
		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	(9) Analyzing the validity, reliability, and representation of data enables us to compare and interpret: statistics in society. *Apply flexible and strategic approaches to solve problems.

			*Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.
Christian Values	9	Al.1 Identify the principles of SDA Christian values in correlation with mathematics.	*Throughout all 5 main standards: <ul style="list-style-type: none"> • The principles and processes underlying operations with numbers apply equally to algebraic situations and can be described and analyzed. • Computational fluency and flexibility with numbers extend to operations with rational numbers. • Continuous linear relationships can be identified and represented in many connected ways to identify regularities and make generalizations. • Similar shapes have proportional relationships that can be described, measured, and compared. • Analyzing the validity, reliability, and representation of data enables us to compare and interpret.
		Al.1.1 Recognize God as Creator and Sustainer of an ordered universe.	
		Al.1.2 Value God’s inspired writings and created works as a revelation of His precision, accuracy, and exactness.	
		Al.1.3 Develop accountability as expressed in God’s word and laws.	
		Al.1.4 Employ Christian principles as a basis for learning and growth.	
		Al.1.5 Broaden intellectual abilities through the study of mathematics.	
		Al.1.6 Make biblically-based choices when dealing with mathematical data.	
		Al.1.7 Apply biblical principles of Christian morality, integrity, and ethical behavior to mathematical processes.	

Note: NAD Secondary Mathematics standards are classified by course rather than by grade. For the correlation above, course standards were assigned to grades as follows:

Gr. 9 – Algebra I standards; Pre-Algebra standards

Gr. 10 – Algebra II standards; Geometry standards

Gr. 11 – Consumer Math standards; pre-Calculus standards

Gr. 12 – Calculus standards

**BC Note: Math 11 and 12 standards reflect two courses for each grade:

Gr. 11 – Foundations of Math (F11), Pre-Calculus 11 (P11)

Gr. 12 – Pre-Calculus 12 (P12), Calculus 12 (C12)