

# Math Standards – Pre-Calculus



## Course Focus [Apply the following to each content standard.]

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

## Course Abilities [Apply the following to each content standard.]

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

## Course Content [understand, represent, apply, analyze]

- PC.4 Be able to understand concepts of functions.**
- PC.4.1 Characterize, classify, and transform functions (even, odd, periodic, piece-wise, continuous, translations, stretches, and compressions).
  - PC.4.2 Demonstrate knowledge of limits (definition, properties, finite, infinite).
- PC.5 Be able to represent mathematical relationships and situations.**
- PC.5.1 Verify trigonometric identities.
  - PC.5.2 Write and graph rectangular and parametric equations.
  - PC.5.3 Identify, graph, and interpret various functions (polynomial, inverse, trigonometric, logarithmic, exponential, etc.).
  - PC.5.4 Present data using statistics and probability (regressions, counting techniques).
  - PC.5.5 Illustrate and explore characteristics and operations connecting sequences and series.
- PC.6 Be able to apply appropriate techniques, tools, and formulas to interpret and solve problems.**
- PC.6.1 Solve systems of equations and inequalities using graphs, algebraic methods, and matrices.
  - PC.6.2 Solve higher order equations and inequalities from written and oral expression, recognizing equivalent forms.
  - PC.6.3 Solve exponential and logarithmic equations.
  - PC.6.4 Perform operations involving polynomials, functions, rational expressions, vectors, and matrices.
  - PC.6.5 Decompose fractions into parts.
  - PC.6.6 Demonstrate mathematical proficiency using a graphing utility.
- PC.7 Be able to analyze results and draw appropriate conclusions.**
- PC.7.1 Find and interpret information from graphs, charts, and numerical data.
  - PC.7.2 Predict patterns and generalize trends.
  - PC.7.3 Analyze and write equations for conic sections.
  - PC.7.4 Judge meaning, utility, and reasonableness of findings in a variety of situations, including those carried out by technology.