

**1) Polynomial Functions, Number Sets, and Interval Notation:**

Model and analyze polynomial functions. Solve polynomial equations.

- 1.1) Understand the relationship between number sets.
- 1.2) Find equivalent representations for intervals.
- 1.3) Find equivalent representations for polynomials.
- 1.4) Perform operations on polynomial expressions.
- 1.5) Analyze and determine the roots of a polynomial.

**2) Polynomial Functions with Complex Roots:**

Model and analyze polynomial functions with complex solutions.

- 2.1) Perform operations with imaginary and complex numbers.
- 2.2) Determine complex roots of polynomial equations.
- 2.3) Write a polynomial equation given its real and/or complex solutions.
- 2.4) Graph and analyze polynomial functions.

**3) Radical Functions:**

Model and analyze radical functions. Solve radical equations.

- 3.1) Find equivalent expressions using the properties of rational exponents.
- 3.2) Perform arithmetic operations to simplify radical expressions.
- 3.3) Solve radical expressions.
- 3.4) Graph and analyze radical functions.

**4) Rational Functions:**

Model and analyze rational functions. Solve rational equations.

- 4.1) Find equivalent representations for rational expressions and identify restrictions.
- 4.2) Perform operations on rational expressions.
- 4.3) Solve algebraic proportions and rational expressions.
- 4.4) Graph and analyze rational functions.

**5) Logarithmic and Exponential Functions:**

Model and analyze logarithmic and exponential functions. Solve logarithmic and exponential equations.

- 5.1) Establish the inverse relationship between exponential and logarithmic functions.
- 5.2) Prove and apply the basic properties of logarithms.
- 5.3) Solve exponential and logarithmic equations.
- 5.4) Graph and analyze logarithmic and exponential functions.

**6) Sequences and Series:**

Analyze and evaluate sequences and series.

- 6.1) Define, recognize and discriminate among arithmetic, geometric and other sequences and series
- 6.2) Find the explicit and recursive formulas for arithmetic and geometric sequences and use these formulas to determine terms and term numbers.
- 6.3) Convert between a series and its sigma notation.
- 6.4) Find a partial sums of arithmetic and geometric series and find sums of convergent infinite series.
- 6.5) Generate and describe other recursive sequences such as factorials and Fibonacci.