

PRE-CALCULUS

PURPOSE:

Students will perform operations and apply properties to the complex number systems. Students will review in-depth most of the topics covered in Algebra II. 3 hrs of college algebra credit is optional.

BENCHMARKS AND INDICATORS:

1. Solve equations and inequalities with one variable

- PC11 Solve linear equations and inequalities in one variable
- PC12 Solves absolute value equations and inequalities in one variable
- PC13 Solves quadratic equations in one variable
- PC14 Solve higher degree polynomials and equations with rational expressions

2. Graphs linear equations and inequalities

- PC21 Graphs linear equations in slope intercept form and general form
- PC22 Determines if lines are parallel or perpendicular
- PC23 Graphs inequalities

3. Graphs functions and perform operations on functions and finds their inverses

- PC31 Determines if a relation is a function
- PC32 Determine the domain and range of a function or relation
- PC33 Uses function notation
- PC34 Identify, solve and graph constant, linear, quadratic, cubic, square root, absolute value, and peicewise functions
- PC35 Graph absolute value, square root, piecewise, rational, non-function using transformations
- PC36 Add, subtract, multiply, divide and compose functions
- PC37 Find the inverse functions graphically and algebraically

4. Graphs polynomial and rational functions

- PC41 Finds rational zeroes of polynomial functions by using synthetic division
- PC42 Graph polynomial functions using concepts of symmetry, intercepts and left/right behavior
- PC43 Graph rational functions finding horizontal and vertical asymptotes
- PC44 Graph polynomial and rational inequalities

5. Uses the Fundamental Theorem of Algebra

- PC51 Recognizes the number of zeroes a polynomial will have including multiplicity of zeroes in the complex number system
- PC52 Finds a polynomial equation that has given roots

6. Solves systems of equations and inequalities

- PC61 Solves systems of equations with two and three variables
- PC62 Graphs systems of inequalities
- PC63 Analyzes data from systems of equations and inequalities

7. Solves exponential and logarithmic functions

- PC71 Solves and graphs exponential functions
- PC72 Demonstrates knowledge of natural exponential functions through applications
- PC73 Converts between exponential form and logarithmic form
- PC74 Uses properties of logs to rewrite as one log or to break apart into several logs
- PC75 Changes bases of logs
- PC76 Solves exponential and logarithmic equations