

Main Idea: Polynomial Functions

Objectives:

- The student will refine the ability to graph and understand the characteristics of even and odd functions.
- The student will master the ability to solve and graph absolute value inequalities.
- The student will master the concept and use of correlation coefficient.
- The student will refine the ability to employ the Graph Translation Theorem and the concept of symmetry to sketch the graph of a polynomial function after a translation.
- The student will refine the ability to solve optimization problems involving polynomial functions.
- The student will refine the ability to write a set of numbers using interval notation.
- The student will use representations to model and interpret physical, social, and mathematical phenomena.

Skills:

- Make mathematical arguments using the concepts of limit.
- Transform bivariate data so it can be modeled by a function; e.g., use logarithms to allow nonlinear relationship to be modeled by linear function.

Main idea: Solving Inequalities

Objectives:

- The student will review factoring polynomials using sum and difference of cubes, perfect square trinomial, difference of squares, common trinomials, and grouping patterns.
- The student will master solving polynomial inequalities in one or two variables.
- The student will master solving systems and quadratic inequalities using interval testing.
- The student will refine the ability to solve equations involving rational expressions.
- The student will refine the ability to determine the zeros, roots, intercepts and solutions of a polynomial function.
- The student will review the definition and application of the Factor Theorem.
The student will review the use of the Rational Zero Theorem to find possible rational roots of a function.
- The student will master the concept and use of correlation coefficient.
- The student will refine the ability to determine intervals of increase and decrease, and maximum and minimum points from the graph and the equation of a polynomial function.
- The student will review the use of synthetic division.
- The student will refine the ability to write a set of numbers using interval notation.
- The student will use representations to model and interpret physical, social, and mathematical phenomena.

Skills:

- Transform bivariate data so it can be modeled by a function; e.g., use logarithms to allow nonlinear relationship to be modeled by linear function.

Main Idea: Correlation Coefficients

Objectives:

- The student will master the concept and use of correlation coefficient.
- The student will use representations to model and interpret physical, social, and mathematical phenomena.

Skills:

- Transform bivariate data so it can be modeled by a function; e.g., use logarithms to allow nonlinear relationship to be modeled by linear function.
- Calculate relative error.

Main Idea: Trigonometric Equations

Objectives:

- The student will master the ability to solve trigonometric equations.
- The student will review solving problems with the Law of Sines and Law of Cosines.
- The student will refine the use of inverse trigonometric functions to solve problems.
- The student will master the concept and use of correlation coefficient.
- The student will refine their understanding of the unit circle.
- The student will refine their understanding of trigonometric graphs and their characteristics.
- The student will use representations to model and interpret physical, social, and mathematical phenomena.
- The student will graph and apply parametric equations.
- The student will interpret and apply vectors.
- The student will graph, classify, and convert polar equations.

Skills:

- Derive and apply the basic trigonometric identities; i.e., angle addition, angle subtraction and double angle.
- Transform bivariate data so it can be modeled by a function; e.g., use logarithms to allow nonlinear relationship to be modeled by linear function.
- Calculate relative error.

Main Idea: Applying DeMoivre's Theorem

Objectives:

- The student will master the definition and uses of DeMoivre's Theorem.
- The student will master the ability to solve trigonometric equations.
- The student will review solving problems with the Law of Sines and Law of Cosines.
- The student will refine the use of inverse trigonometric functions to solve problems.
- The student will master the ability to calculate powers of binomials using DeMoivre's Theorem.
- The student will master the ability to calculate nth roots.
- The student will master the conversion between rectangular and polar coordinates.
- The student will master the conversion between complex and polar coordinates.
- The student will master the ability to write polar equations of conics.
- The student will master the representation of vectors both geometrically and algebraically.
- The student will master the concept of parallel and perpendicular vectors.
- The student will master the concept and use of correlation coefficient.
- The student will refine their understanding of the unit circle.
- The student will refine their understanding of trigonometric graphs and their characteristics
- The student will master the graphs of polar coordinates and equations.
- The student will review multiplication and division with polar coordinates.
- The student will master the definition of polar coordinates.
- The student will use representations to model and interpret physical, social, and mathematical phenomena.

Skills:

- Transform bivariate data so it can be modeled by a function; e.g., use logarithms to allow nonlinear relationship to be modeled by linear function.