Pre-Calculus

Bayou Academy

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- Diagram the relationship among the subsets of the complex number system.
- Classify functions based on sketches of their graphs.
- Describe the attributes of graphs and the general equations of parent functions (linear, quadratic, cubic, absolute value, rational, exponential, logarithmic, square root, cube root, and greatest integer).
- Sketch and describe transformations of functions.
- Explain the effects of changing the parameters in transformations of functions.
- Predict the shapes of graphs of exponential, logarithmic, rational, and piece-wise functions, and verify the prediction with and without technology.
- Relate symmetry of the behavior of even and odd functions.
- Identify and sketch the essential graphs of the four conic sections: circle, parabola, ellipse, and hyperbola.
- Determine characteristics of graphs of parent functions (domain/range, increasing/decreasing intervals, intercepts, symmetry, end behavior, and asymptotic behavior).
- Determine horizontal, vertical, and slant asymptotes and holes of rational functions and explain how each was found.
- Determine the domain and range of functions, including piece-wise functions.
- Determine the end behavior of polynomial functions.
- Decompose composite functions into component functions.
- Solve exponential and logarithmic equations to include real-world applications.
- Find the possible rational roots using the Rational Root Theorem.
- Find the zeros of polynomial functions by synthetic division and the Factor Theorem.
- Graph and solve quadratic inequalities.
- Decompose a rational function into partial fractions.
- Analyze expressions in summation and factorial notation to solve problems.
- Expand and apply the Binomial Theorem to problem-solving situations.
- Perform conversions across measurement systems including degree to radian measurements of angles and radian measurements to degree measurements of angles.
- Apply the six trigonometric functions in relation to a right triangle to solve real world applications and problems in mathematical settings.
- Use the unit circle to solve real-world applications and problems in mathematical settings.
- Find exact values of trigonometric functions of special angles in the unit circle.
- Find arc length and sector area of a circle.
- Model and apply right triangle formulas, Law of Sines, and Law of Cosines to problem-solving situations.