

Unit 2: Rational, Exponential, and Logarithmic Functions
Unit Objectives
Honors Pre-Calculus

Note: While the test is calculator active, students will be required to show all algebraic processes when answering questions.

Rational Functions:

- Graph rational functions.
- State characteristics of rational functions including: domain, range, y-intercept, x-intercepts, vertical asymptotes, holes, horizontal asymptotes, slant asymptotes, end behavior using limit notation, and vertical asymptotes behavior using limit behavior.
- Solve rational equations.
- Solve rational inequalities using a sign chart.

Solving Equations and Inequalities

- Solve polynomial and rational equations. Determine values that cannot exist.
- Solve polynomial, rational, and other types of inequalities using a sign chart.

Partial Fractions

- Decompose partial fractions with nonrepeating linear terms.

Exponential and Logarithmic Functions

- Describe transformation of exponential and logarithmic equations.
- Write the equation of an exponential or logarithmic function based on the graph.
- Write the equation of an exponential function given two points.
- Describe the following characteristics of an exponential or logarithmic function: domain, range, key point, asymptotes, and end behavior using limits.
- Understand the meaning of a common logarithm and natural logarithm.
- Apply the change of base formula
- Graph logistic growth functions and state the y-intercept and asymptotes.
- Use properties of logarithms to expand or condense expressions.
- Solve exponential and logarithmic equations.

Exponential and Logarithmic Modeling

- Use the regression function in the calculator to create exponential and logarithmic models.
- Solve financial based application problems.
- Create models for half-life or double life problems and use solving techniques to answer questions based on the model.
- Interpret information and answer questions based on exponential, logistic, and logarithmic problems.