Unit 1 Transformations of Functions

Students use equations to transform functions and to model situations in context. They also revisit key features of functions, including domain and range.

*This course is in development, so the goals and number of lessons per sub-unit may change slightly.

Unit 2 Polynomial Functions

Students extend their knowledge of linear and quadratic functions to polynomial functions of higher degree. They describe key features of polynomials from their graphs and equations, rewriting functions in different forms to support their thinking. They explore two new key features: end behavior and multiplicities of zeros. Students also sketch graphs, write equations, and solve for all real and non-real zeros of polynomials.

*This course is in development, so the goals and number of lessons per sub-unit may change slightly.

Unit 3 Rational Functions

Students graph rational functions and analyze them to determine some of their key features, including asymptotes and holes. Students also write and solve rational equations and model real-world situations using rational functions.

*This course is in development, so the goals and number of lessons per sub-unit may change slightly.

Pre-Unit Check (Optional)

Sub-Unit 1 Graphing Rational Functions

3.01   Climbing Chaos | Exploring Rational Functions

3.02   Cool Your Jets | Determining Vertical Asymptotes

3.03   Looks Sketchy | Sketching With Horizontal Asymptotes

3.04   How Will It End? | End Behavior and Oblique Asymptotes

3.05   Holey Moley | Graphs With Holes

Practice Day 1

Sub-Unit Quiz

Sub-Unit 2 Solving Rational Functions

3.06   The Pursuit of Hoop-iness | Rational Equations in Context

3.07   So Extra(neous)! | Extraneous Solutions

3.08   Solving, More or Less | Solving Rational Equations

3.09   Wear It's At | Modeling With Rational Functions

Practice Day 2

End-of-Unit Assessment

Unit 4 Root Functions and Radical Equations

Students explore situations where reversing the inputs and outputs of a polynomial function leads to a root function, and determine inverse functions more generally. Students also graph and explore the key features of root functions, write and solve radical equations and inequalities, and model situations with root functions.

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Unit 5 Exponential Functions

Students extend what they learned about exponential functions in previous courses. They write and interpret exponential functions in context, including situations that compound continuously. They explore how to use logarithms to solve exponential equations. They also describe connections between the graphs, tables, key features, and equations of exponential functions and their logarithmic inverses.

*This course is in development, so the goals and number of lessons per sub-unit may change slightly.

Unit 6 Trigonometric Functions

Students extend what they've learned about right triangle trigonometry to define trigonometric functions. In this unit, students explore the unit circle and graph trigonometric functions.

*This course is in development, so the goals and number of lessons per sub-unit may change slightly.

Unit 7 Modeling with Mathematics

Students make sense of relationships between two-dimensional figures and three-dimensional solids by rotating figures around an axis. Students also apply formulas to model and solve design problems to meet a set of constraints.

*This course is in development, so the goals and number of lessons per sub-unit may change slightly.

Unit 8 Statistical Inference

Students explore the process of statistics as they learn to ask questions, collect and analyze data, and interpret results. They model one-variable data using normal curves to support them in calculating percentages, estimating population parameters, developing a margin of error, and determining if the results of an experiment are significant.

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