

PreCalculus

Algebra and Trigonometry with an eye on Calculus

The Standards

The PreCalculus standards are taken directly from the Common Core and can be seen in more detail by following the embedded links.

Number & Quantity

[The Real Number System](#)

- Extend the properties of exponents to rational exponents.
- Use properties of rational and irrational numbers.

[The Complex Number System](#) (EXCEEDS)

- Perform arithmetic operations with complex numbers.
- Represent complex numbers and their operations on the complex plane.
- Use complex numbers in polynomial identities and equations.

Algebra

[Seeing Structure in Expressions](#)

- Interpret the structure of expressions.
- Write expressions in equivalent forms to solve problems

[Arithmetic with Polynomials & Rational Expressions](#)

- Perform arithmetic operations on polynomials
- Understand the relationship between zeros and factors of polynomials
- Use polynomial identities to solve problems
- Rewrite rational expressions

[Reasoning with Equations & Inequalities](#)

- Understand solving equations as a process of reasoning and explain the reasoning
- Solve equations and inequalities in one variable
- Solve systems of equations
- Represent and solve equations and inequalities graphically

Functions

[Interpreting Functions](#)

- Understand the concept of a function and use function notation
- Interpret functions that arise in applications in terms of the context
- Analyze functions using different representations
- Solve problems using equation and graph representations of functions.

[Building Functions](#)

- Build a function that models a relationship between two quantities
- Build new functions from existing functions

[Linear, Quadratic, & Exponential Models*](#)

- Construct and compare linear and exponential models and solve problems
- Interpret expressions for functions in terms of the situation they model

[Trigonometric Functions](#)

- Extend the domain of trigonometric functions using the unit circle
- Model periodic phenomena with trigonometric functions
- Prove and apply trigonometric identities

Standards of Mathematical Practice

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

***Modeling**

Modeling is best interpreted not as a collection of isolated topics but in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol (★). The star symbol sometimes appears on the heading for a group of standards; in that case, it should be understood to apply to all standards in that group.