

OVERVIEW OF ALGEBRA II NEXT GENERATION LEARNING STANDARDS

Standards that are shared with Algebra II are labeled [I] below.

ALGEBRA

Polynomials

- Rewrite expressions in equivalent forms (A-SSE.A.2) [I]
- Write expressions in equivalent forms (including factored form) to reveal properties (A-SSE.B.3) [I]
- Apply the Remainder Theorem (A-APR.B.2)
- Identify zeroes of polynomial functions (A-APR.B.3) [I]
- Divide polynomials with remainder (A-APR.D.6)
- Solve quadratic equations by inspection, taking square roots, factoring, completing the square, quadratic formula, graphing, with solutions in $a + bi$ form (A-REI.B.4) [I]

Rational and Radical Equations

- Solve rational and radical equations, identify extraneous solutions (A-REI.A.2)

Systems of Equations

- Solve a quadratic-linear system of equations algebraically and graphically (A-REI.C.7)
- Approximate, justify, interpret graphical solution to $f(x) = g(x)$ and $f(x) \leq g(x)$ (A-REI.D.11) [I]

Algebra and Modeling

- Create one-variable equations and inequalities (A-CED.A.1) [I]

STATISTICS

Univariate and Bivariate Data

- Determine if a normal curve is appropriate for data. Determine population percentages using a normal distribution (S-ID.A.4)
- Represent bivariate data on scatterplot (S-ID.B.6) [I]
- Fit linear, quadratic, exponential, power functions to data (S-ID.B.6a) [I]

Probability

- Describe events as unions, intersections, or complements of other events (S-CP.A.1)
- Interpret two-way frequency tables and determine if events are independent, calculate conditional probabilities (S-CP.A.4)

Inference

- Determine if a statistic is likely to occur based on a given simulation (S-IC.A.2)
- Recognize the purposes of and differences among surveys, experiments, and observational studies (S-IC.B.3)
- Construct 95% interval centered on a statistic and determine if a suggested parameter is plausible (S-IC.B.4)
- Use statistical tools to draw conclusions from numerical summaries and critique claims from texts (S-IC.B.6)

NUMBER & QUANTITY

Rational Exponents

- Convert between expressions with radicals and rational exponents (N-RN.A.2)

Complex Numbers

- Add, subtract, multiply complex numbers (N-CN.A.2)

FUNCTIONS

Properties of Functions

- Sketch graphs of functions given verbal description, interpret key features of graphs and tables (F-IF.B.4) [I]
- Calculate and interpret average rate of change of a function over an interval (F-IF.B.6) [I]
- Graph and show features of graphs (F-IF.C.7)
- Graph polynomial functions and show zeroes and end behavior (F-IF.C.7c)
- Graph cube root, exponential, log (show intercepts, end behavior), trig (show period, midline, amplitude) functions (F-IF.C.7e)
- Write a function in different forms to reveal its properties (F-IF.C.8) (e.g. Interpret exponential functions and classify as growth or decay) (F-IF.C.8b) [I]
- Compare properties of two functions represented in different ways (F-IF.C.9) [I]
- Recognize even and odd functions from their graphs (F-BF.B.3)
- Find the inverse of a function algebraically and graphically (F-BF.B.4)

Exponential and Logarithmic Functions

- Rewrite exponential expressions (A-SSE.B.3c) [I]
- Use logarithms to solve exponential equations, evaluate logs (F-LE.A.4)
- Interpret parameters of linear or exponential function in context (F-LE.B.5) [I]

Sequences and Series

- Construct linear and exponential functions (F-LE.A.2) [I]
- Identify explicit and recursive sequences as functions with integer domain (F-IF.A.3) [I]
- Write arithmetic and geometric sequences explicitly and recursively, translate between the forms, use for modeling (F-BF.A.2)
- Understand inverse relationships between exponents and logarithms algebraically and graphically (F-BF.B.5)
- Represent and evaluate sum of a finite arithmetic and geometric series (F-BF.B.7) using summation notation (F-BF.B.6)

Trigonometric Functions

- Use unit circle and given angles in radian measure to calculate values (F-TF.A.2) and explain symmetry (odd and even) and periodicity of trig functions
- Use sine or cosine functions to model periodic behavior (F-TF.B.5)
- Prove Pythagorean identity and use it to find trig functions given values of other trig functions (F-TF.C.8)

Functions and Modeling

- Write a function to describe a relationship (F-BF.A.1) [I]
- Combine functions using arithmetic operations (F-BF.A.1b)
- Transform functions ($f(bx + h) + k$), recognize even and odd functions (F-BF.B.3) [I]