

ISPS Math Standards & Benchmarks
(Adapted from AERO standards)

Algebra II

Standard 1 - Students will apply a wide variety of mathematical concepts, processes, and skills to solve a broad range of problems in various content areas and everyday situations.

Benchmarks - By the end of Algebra II, students will:

- 1 – 1 Explore the validity and efficiency of various problem-posing and problem-solving strategies; develop alternative strategies and generalizations as needed
- 1 – 2 Monitor progress toward solutions
- 1 – 3 Generalize strategies and reflect on their proficiency and merit

Standard 2 - Students will apply mathematical reasoning skills to investigate, evaluate, justify, and connect approaches and solutions to situations in mathematics and in other disciplines.

Benchmarks - By the end of Algebra II, students will:

- 2 – 1 Use the connections among mathematical topics to develop multiple approaches to problems
- 2 – 2 Demonstrate how graphs can be used to model real-world situations and to determine solutions to numerous problems involving algebraic functions.

Standard 3 - Students will understand mathematical information presented and obtained in a variety of ways and will accurately and clearly present and justify mathematical ideas in diverse formats.

Benchmarks - By the end of Algebra II, students will:

- 3 – 1 Formulate questions, conjectures, and generalizations about data, information, and problem situations
- 3 – 2 Present complete and convincing arguments and justifications adapted to be effective for various audiences
- 3 – 3 Use technology (such as graphics calculators, spreadsheets, graphing programs) to present information and ideas
- 3 – 4 Use properties, models, known facts, and relationships to explain and defend thinking

Standard 4 - Students will select and use a wide variety of tools and technology to support and validate mathematical results, when appropriate.

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Benchmarks - By the end of Algebra II, students will:

4 – 1 Use graphing calculators and computer software effectively and efficiently to define and solve various types of problems.

Standard 5 - Students will understand and apply numbers, ways of representing numbers, relationships among numbers, and number systems.

Benchmarks - By the end of Algebra II, students will:

5 – 1 Understand the concept of infinity

Standard 6 - Students will estimate, compute, and assess reasonableness of solutions.

Benchmarks - By the end of Algebra II, students will:

6 – 1 Demonstrate proficiency with and memorize addition and subtraction facts through 20 and multiplication facts through 10

Standard 7 - Students will use algebraic methods to represent, analyze, and solve abstract and practical mathematical situations involving patterns and functional relationships.

Benchmarks - By the end of Algebra II, students will:

7 – 1 Define functions and their properties and find the inverse of a function; understand the relationship between a function and its inverse

7 – 2 Create and solve linear and quadratic equations and inequalities

Standard 8 - Students will use spatial reasoning and apply the properties and relationships of geometric figures to represent, investigate, analyze, and solve problems.

Benchmarks - By the end of Algebra II, students will:

8 – 1 Use coordinate geometry to graph linear and quadratic equations, determine slopes of lines, identify parallel and perpendicular lines, and find possible solutions to sets of equations

8 – 2 Construct geometric models, transformations, and scale drawings using a variety of methods and tools (such as the protractor)

Standard 9 - Students will pose a question, collect, organize, analyze, and represent data in order to make decisions and predictions.

Benchmarks - By the end of Algebra II, students will:

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- 9 – 1 Determine regression equations to model and draw inferences from data; summarize and interpret single-variable data by choosing measures of central tendency and dispersion