

ISPS Math Standards & Benchmarks
(Adapted from AERO standards)

Geometry

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 Geometry, 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 Geometry, students will:

- 2 – 1 Construct, follow and evaluate arguments, judging their validity using reasoning and logic
- 2 – 2 Use a variety of methods of proofs (for example, direct, indirect, informal, truth tables, paragraph) to validate conjectures
- 2 – 3 Use the connections among mathematical topics to develop multiple approaches to problems
- 2 – 4 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 Geometry, 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

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

Benchmarks - By the end of Geometry, 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 estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools, and technologies.

Benchmarks - By the end of Geometry, students will:

5 – 1 Apply indirect methods, such as ratios and trigonometry, to find missing dimensions

Standard 6 - 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 Geometry, students will:

6 – 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

6 – 2 Construct geometric models, transformations, and scale drawings using a variety of methods and tools (such as paper folding or protractor)

6 – 3 Identify congruent and similar figures; apply this information to solve problems

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