

Performance Level Descriptors

Geometry/Integrated Mathematics 2

Basic

A **Geometry/Integrated Mathematics 2** student performing at the **Basic Level** identifies conditions for triangle congruence; identifies valid geometric statements; writes examples to support/disprove conclusions about geometric relationships; applies basic theorems about parallelograms; determines missing side length in right triangles; verifies properties of figures in a coordinate plane; uses different degrees of precision in measurements; solves problems involving measurement conversions between systems; uses basic strategies to solve problems.

A student performing at the basic level can do things like...

- Identify triangle congruence using Angle-Side-Angle, Side-Angle-Side, Side-Side-Side and Angle-Angle-Side.
- Evaluate the validity of a conditional statement.
- Determine whether or not an error in logic exists in an argument.
- Identify properties of triangles, parallelograms and other quadrilaterals.
- Solve right triangle problems using the Pythagorean theorem and its converse.
- Given a triangle or quadrilateral in a coordinate plane, verify properties of the figure using informal processes.
- Determine the best level of precision in context when given a choice.
- Given a conversion factor, convert linear and area measurements within a system or between systems.
- Communicate mathematical ideas occasionally using appropriate geometric conventions and the language of mathematics including words, symbols and diagrams.
- Check the solution to a problem.

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Proficient

A **Geometry/Integrated Mathematics 2** student performing at the **Proficient Level** proves triangle congruence; writes valid geometric statements; proves or disproves conclusions about geometric relationships; applies theorems about quadrilaterals; determines missing measures in right triangles; applies properties of figures in a coordinate plane; uses different degrees of precision appropriately in measurements; solves problems involving derived units; uses a variety of efficient strategies to reason and solve problems.

A student performing at the proficient level can do things like...

- Apply postulates and theorems to determine and prove triangle congruence in simple situations.
- Evaluate the validity of a conditional statement and identify a specific counterexample if appropriate.
- Identify errors in a logical argument and provide a specific counterexample.
- Apply properties of triangles and parallelograms to determine unknown side lengths or unknown angle measures.
- Given a diagram involving one or more right triangles, determine unknown side lengths and angle measures.
- Given a coordinate plane and the coordinates of points, verify properties of triangles and quadrilaterals using slopes and distances.
- Apply estimation strategies to obtain reasonable measurements with appropriate precision.
- Solve problems involving measurement conversions within a system and, when given a conversion factor, between systems.
- Communicate mathematical ideas frequently using appropriate geometric conventions and the language of mathematics.
- Verify the reasonableness of a solution.

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Geometry/Integrated Mathematics 2

Advanced

A **Geometry/Integrated Mathematics 2** student performing at the **Advanced Level** writes and supports valid geometric statements; formally proves or disproves conclusions about geometric relationships, including triangle congruence; applies basic theorems about polygons; solves multistep problems involving right triangles; solves problems involving properties of figures in a coordinate plane; specifies the precision needed in measurement problems; solves problems involving derived units and analyses reasonableness of solutions; uses a variety of efficient strategies to solve problems and verifies solutions.

A student performing at the advanced level can do things like...

- Apply postulates and theorems to determine and prove triangle congruence in complex situations.
- Evaluate the validity of a conditional statement, identify a specific counterexample if appropriate, and generalize the results.
- Describe and correct errors in a logical argument.
- Apply and prove properties of triangles, parallelograms, other quadrilaterals, and other polygons.
- Extract relevant information to solve problems involving right triangles using methods including special right triangles.
- Given a coordinate plane, the coordinates of points, and using slopes and distances, verify properties of triangles and quadrilaterals and justify their results.
- Explain the reason for using a degree of precision in a particular context.
- Solve problems involving measurement conversions with derived units.
- Communicate mathematical ideas clearly using geometric conventions and the language of mathematics including words, symbols, and diagrams.
- Evaluate a solution for reasonableness and verify its accuracy; interpret the solution in the context of the problem and express the solution with the correct precision.