

Geometry Unit 4 Standards-Based Worksheet

District of Columbia Public Schools – Mathematics

STANDARD

G.G.8. Write simple proofs of theorems in geometric situations, such as theorems about triangles, congruent and similar figures, and perpendicular and parallel lines (e.g., the longest side is opposite the greatest angle, two lines parallel to a third are parallel to each other; perpendicular bisectors of line segments are the set of all points equidistant from the two end points).

Concepts:

- proofs (of theorems)
- theorems (about congruent and similar figures and perpendicular and parallel lines)

Skills:

- write (proofs)

Big Ideas:

- In proofs, deductive reasoning about given information is used to reach mathematical conclusions.
- Theorems and properties exist that guarantee two triangles are congruent or similar given certain conditions.
- Relationships between lines, angles and figures can be used to establish additional mathematical relationships.
- Congruent figures are also similar figures, but similar figures are not always congruent.
- Parallel and perpendicular lines are used to prove triangles congruent or similar.

Essential Questions:

- Why write formal proofs?
- Why are properties and theorems about parallel and perpendicular lines useful in geometric proofs?
- How can reasoning about geometric situations be used to solve real life problems?
- If two figures are congruent or similar, what else do you know about their corresponding parts?
- What theorems or postulates (properties) guarantee two triangles congruent?
- How do congruent figures differ from similar figures?

Engaging Scenario:

Triangles are parts of this city's landscape especially the monuments and government buildings. On a recent class trip to see the United States Constitution at the National Archives, you notice a triangle adorns the entrance. Since you have just completed your study of triangles you wonder if the triangle is isosceles. Even though the triangle appears to be isosceles, can you prove it is isosceles?