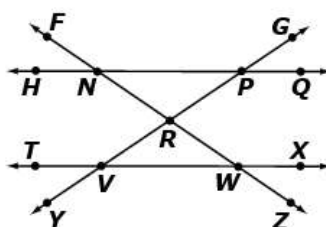


MAFS.912.G-CO.3.9	Prove theorems about lines and angles; use theorems about lines and angles to solve problems. <i>Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.</i>
Item Types	Editing Task Choice – May require choosing a statement in a narrative proof. Equation Editor – May require creating numerical values, expressions, or equations. GRID – May require completing a proof as a diagram, such as a flowchart. Hot Text – May require completing a proof by selecting statements. Matching Item – May require choosing true statements about lines and angles in a diagram. Multiselect – May require identifying statements or values. Multiple Choice – May require selecting from choices. Open Response – May require explaining a proof in a narrative paragraph or providing a justification.
Clarifications	Students will prove theorems about lines. Students will prove theorems about angles. Students will use theorems about lines to solve problems. Students will use theorems about angles to solve problems.
Assessment Limits	Items may assess relationships between vertical angles, special angles formed by parallel lines and transversals, angle bisectors, congruent supplements, congruent complements, and a perpendicular bisector of a line segment. Items may have multiple sets of lines and angles. Items may include narrative proofs, flow-chart proofs, two-column proofs, or informal proofs. In items that require the student to justify, the student should not be required to recall from memory the formal name of a theorem.
Stimulus Attribute	Items may be set in a real-world or mathematical context.
Response Attributes	Items may require the student to give statements and/or justifications to complete formal and informal proofs. Items may require the student to justify a conclusion from a construction.

Sample Item	Item Type
	Hot Text – Drag and Drop

Mrs. Henry gave her students an incomplete proof as shown.

Given: $\overleftrightarrow{HQ} \parallel \overleftrightarrow{TX}$
 $\angle FNH \cong \angle NPR$



Prove: $\angle RVW \cong \angle XWZ$

Statement	Reason
1. $\overleftrightarrow{HQ} \parallel \overleftrightarrow{TX}$	1. Given
2. $\angle FNH \cong \angle NPR$	2. Given
3. $\angle FNH \cong \angle RVW$	3.
4. $\angle RVW \cong \angle XWZ$	4. Vertical angles are congruent.
5. $\angle FNH \cong \angle XWZ$	5. Transitive property
6. $\angle NPR \cong \angle RVW$	6.
7. $\angle RVW \cong \angle XWZ$	7. Transitive property

Complete the proof by dragging the correct reasons to the table for lines 3 and 6.

Reason 3

- Vertical angles are congruent.
- If two parallel lines are cut by a transversal, the alternate exterior angles are congruent.
- If two parallel lines are cut by a transversal, the alternate interior angles are congruent.
- If two parallel lines are cut by a transversal, the corresponding angles are congruent.

Reason 6

- Vertical angles are congruent.
- If two parallel lines are cut by a transversal, the alternate exterior angles are congruent.
- If two parallel lines are cut by a transversal, the alternate interior angles are congruent.
- If two parallel lines are cut by a transversal, the corresponding angles are congruent.