

2.5: Proving Statements About Segments

Objective: Justify statements about congruent segments
Write reasons for steps in proofs

Vocab: Theorem - a true statement that follows as a result of other true statements

Two-column proof - has numbered statements and reasons that show the logical order of an argument

Properties of Congruent Statements

Theorem 2.1:

Segment congruence is reflexive, symmetric, and transitive

reflexive: $\overline{AB} \cong \overline{AB}$

symmetric: If $\overline{AB} \cong \overline{CD}$, then $\overline{CD} \cong \overline{AB}$

transitive: If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$



Given: $\overline{PQ} \cong \overline{XY}$
Prove: $\overline{XY} \cong \overline{PQ}$

Statement	Reason
1) $\overline{PQ} \cong \overline{XY}$	1) Given
2) $PQ = XY$	2) Definition of congruent segments
3) $XY = PQ$	3) Symmetric Property of equality
4) $\overline{XY} \cong \overline{PQ}$	4) Definition of congruent segments