

Converse of  
Corresponding  
Angles Postulate

Correspond-  
ing Angles  
Postulate

Converse of Alternate  
Exterior Angles  
Theorem

Alternate Exterior Angles  
Theorem

Converse of Alternate  
Interior Angles  
Theorem

Alternate Interior Angles  
Theorem

Converse of Same-  
Side Interior Angles  
Theorem

Same-Side Interior  
Angles Theorem

Converse of  
Perpendicular  
Transversal Theorem

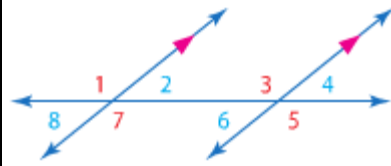
Perpendicular Transversal  
Theorem

# Parallel Lines and Transversals Proof Helper

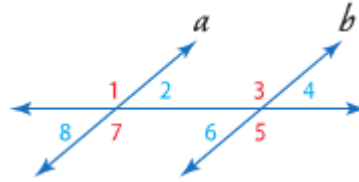
Name: \_\_\_\_\_

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If two parallel lines are cut by a transversal, then each pair of corresponding angles is congruent.



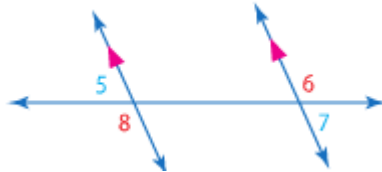
$$\angle 1 \cong \angle 5, \angle 2 \cong \angle 6, \angle 3 \cong \angle 7, \angle 4 \cong \angle 8$$



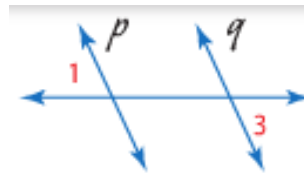
$$\text{If } \angle 1 \cong \angle 5, \angle 2 \cong \angle 6, \angle 3 \cong \angle 7, \angle 4 \cong \angle 8, \text{ then } a \parallel b.$$

If two lines in a plane are cut by a transversal so that a pair of corresponding angles is congruent, then the two lines are parallel.

If two parallel lines are cut by a transversal, then each pair of alternate exterior angles is congruent.



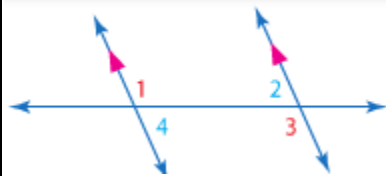
$$\text{Examples } \angle 5 \cong \angle 7 \text{ and } \angle 6 \cong \angle 8$$



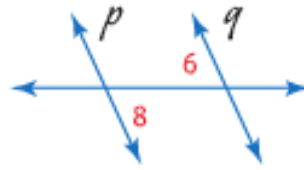
$$\text{If } \angle 1 \cong \angle 3, \text{ then } p \parallel q.$$

If two lines in a plane are cut by a transversal so that a pair of alternate exterior angles is congruent, then the two lines are parallel.

If two parallel lines are cut by a transversal, then each pair of alternate interior angles is congruent.



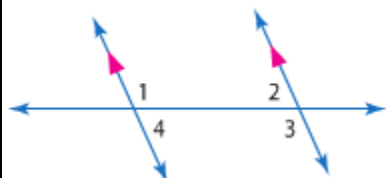
$$\text{Examples } \angle 1 \cong \angle 2 \text{ and } \angle 3 \cong \angle 4$$



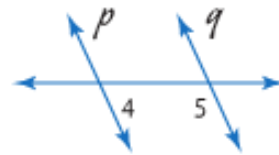
$$\text{If } \angle 6 \cong \angle 8, \text{ then } p \parallel q.$$

If two lines in a plane are cut by a transversal so that a pair of alternate interior angles is congruent, then the two lines are parallel.

If two parallel lines are cut by a transversal, then each pair of same-side interior angles is supplementary.



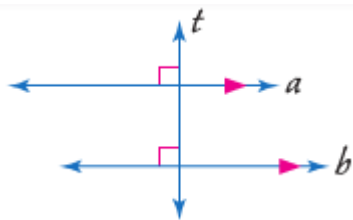
$$\text{Examples } \angle 1 \text{ and } \angle 3 \text{ are supplementary. } \angle 2 \text{ and } \angle 4 \text{ are supplementary.}$$



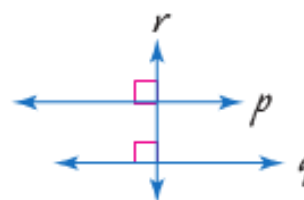
$$\text{If } m\angle 4 + m\angle 5 = 180, \text{ then } p \parallel q.$$

If two lines in a plane are cut by a transversal so that a pair of same-side interior angles is supplementary, then the lines are parallel.

In a plane, if a line is perpendicular to one of two parallel lines, then it is perpendicular to the other.



$$\text{If line } a \parallel \text{ line } b \text{ and line } a \perp \text{ line } t, \text{ then line } b \perp \text{ line } t.$$



$$\text{If } p \perp r \text{ and } q \perp r, \text{ then } p \parallel q.$$

In a plane, if two lines are perpendicular to the same line, then they are parallel.

