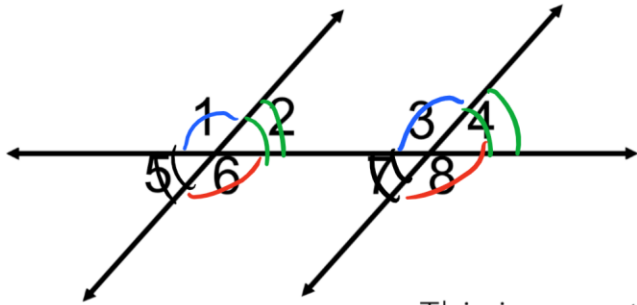


Parallel Line Properties

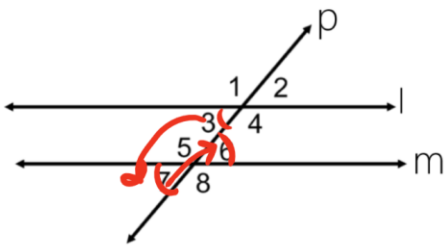
Corresponding Angles Postulate



Corresponding Angles are congruent.

This is a postulate, meaning that it is not proven, but is accepted to be true.

Let's prove the theorems we learned. [Parallel Line Properties](#)



Alternate Interior Angles

Given that  $l$  is parallel to  $m$  prove that  $\angle 3 \cong \angle 6$ .

What logic do we know?

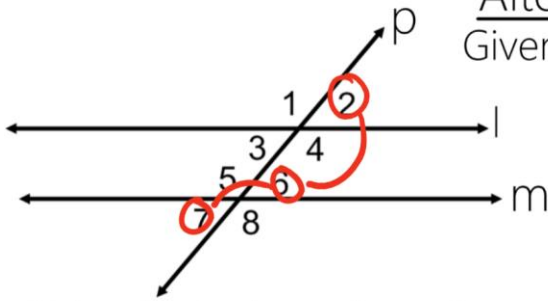
- Corresponding Angles Postulate
- Vertical Angles
- Linear Pairs
- Transitive Property

statement	Reason
$l \parallel m$	Given
$\angle 3 \cong \angle 7$	corr. $\angle$ 's Post.
$\angle 7 \cong \angle 6$	Vert. $\angle$ 's Thm.
$\angle 3 \cong \angle 6$	Transitive Prop.

Let's prove the theorems we learned. [Parallel Line Properties](#)

Alternate Exterior Angles Theorem

Given that  $l$  is parallel to  $m$  show that  $\angle 2 \cong \angle 7$



What logic do we know?

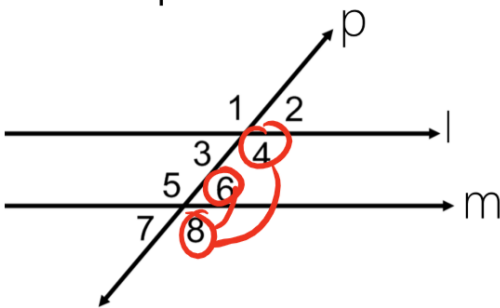
- Corresponding Angles Postulate
- Vertical Angles
- Linear Pairs
- Transitive Property

Statement	Reason
$l \parallel m$	Given
$\angle 2 \cong \angle 6$	Corr. $\angle$ 's Post.
$\angle 6 \cong \angle 7$	Vert. $\angle$ 's Thm.
$\angle 2 \cong \angle 7$	Transitive Prop.

Let's prove the theorems we learned. [Parallel Line Properties](#)

Same Side Interior Angles Theorem

Given that  $l$  is parallel to  $m$  show that  $\angle 4$  is supplementary to  $\angle 6$ .



What logic do we know?

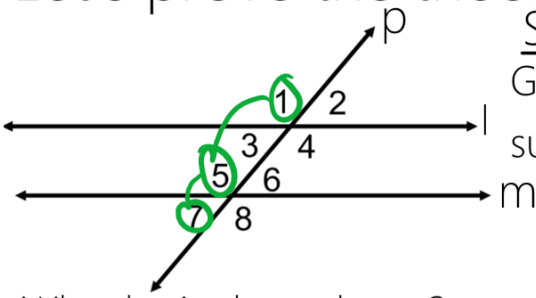
- Corresponding Angles Postulate
- Vertical Angles
- Linear Pairs
- Transitive Property
- Congruence
- Supplementary

Statement	Reason
$l \parallel m$	Given
$\angle 4 \cong \angle 8$	Corr. $\angle$ 's Post.
$\angle 8$ and $\angle 6$ are linear pairs	Def. of Linear Pairs
$m\angle 8 + m\angle 6 = 180^\circ$	Linear Pairs Conjecture
$m\angle 4 = m\angle 6$	Def. of congruence
$m\angle 4 + m\angle 6 = 180^\circ$	Substitution
$\angle 4$ & $\angle 6$ are supplementary	Def. of Supp.

Let's prove the theorems we learned. [Parallel Line Properties](#)

Same Side Exterior Angles Theorem

Given that  $l$  is parallel to  $m$  show that  $\angle 1$  is supplementary to  $\angle 7$ .



What logic do we know?

- Corresponding Angles Postulate
- Vertical Angles
- Linear Pairs
- Transitive Property
- Congruence
- Supplementary

Statement	Reason
$l \parallel m$	Given
$\angle 1 \cong \angle 5$	Corr. $\angle$ 's Post.
$\angle 5$ and $\angle 7$ are linear pairs	Def. of Linear Pairs
$m\angle 5 + m\angle 7 = 180^\circ$	Linear Pairs Conjecture.
$m\angle 1 = m\angle 5$	Def. of congruence
$m\angle 1 + m\angle 7 = 180^\circ$	Substitution
$\angle 1$ and $\angle 7$ are supplementary	Def. of Supplementary