

# Alternate Interior L's

Given Hyp.

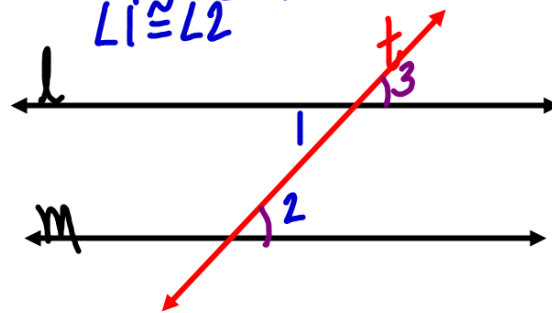
If two lines are cut by a transversal and are parallel, then alternate interior angles are congruent.

Conc. Prove

Given: 2 || lines cut by transversal

Prove: Alt. Int.  $\angle s \cong$   
 $\angle 1 \cong \angle 2$

l || m cut by transversal t



Statements	Reasons.
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1. l    m cut by transversal t	1. Given
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2. $\angle 3 \cong \angle 2$	2. Corr. $\angle s$ Post.
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3. $\angle 3 \cong \angle 1$	3. Vert. $\angle s$ Thm
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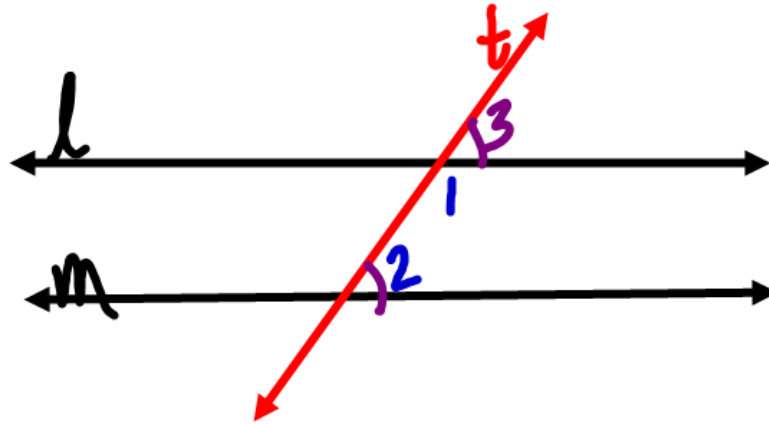
4. $\angle 2 \cong \angle 1$	4. Transitive Prop. or Substitution
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Same Side Interior Angles Theorem

$l \parallel m$  cut by transversal  $t$

If 2 parallel lines are cut by a transversal, then same side interior angles are supplementary.

$$m\angle 1 + m\angle 2 = 180$$



Statements

Reasons

- |   |                          |
|---|--------------------------|
| 1. $l \parallel m$ cut by transversal $t$ | 1. Given                 |
| 2. $\angle 2 \cong \angle 3$              | 2. Corr $\angle$ s Post. |
| 3. $m\angle 1 + m\angle 3 = 180$          | 3. Def. of Linear Pair   |
| 4. $m\angle 1 + m\angle 2 = 180$          | 4. Substitution          |

p|l|l

45. ray

46. perpendicular

47. parallel

48. Vertical Ls

49. Polygon

50. Trapezoid

51. Rhombus

## 3.4 Converse

If  $q$  then  $p$

Converse of Corr.  $\angle$ s Post.

If 2 lines are cut by a transversal  
and corresponding  $\angle$ s are  $\cong$   
then the lines are  $\parallel$ .

