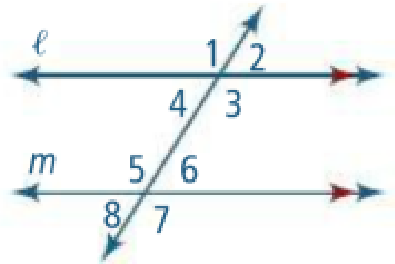
BELLWORK

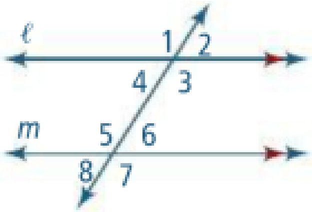
Write the converse of Theorem 7.

Theorem 7 Corresponding Angles Theorem

Theorem	If . . .	Then . . .
If a transversal intersects two parallel lines, then corresponding angles are congruent.	$\ell \parallel m$	$\angle 1 \cong \angle 5$ $\angle 2 \cong \angle 6$ $\angle 3 \cong \angle 7$ $\angle 4 \cong \angle 8$



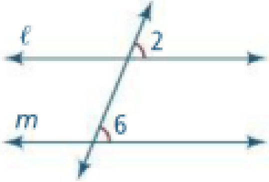
Theorem 7 Corresponding Angles Theorem

Theorem	If . . .	Then . . .
If a transversal intersects two parallel lines, then corresponding angles are congruent.	$\ell \parallel m$ 	$\angle 1 \cong \angle 5$ $\angle 2 \cong \angle 6$ $\angle 3 \cong \angle 7$ $\angle 4 \cong \angle 8$

Essential Understanding You can use certain angle pairs to decide whether two lines are parallel.

take note

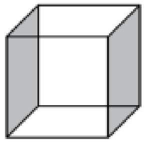
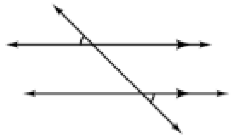
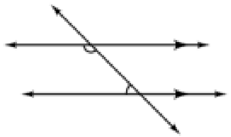
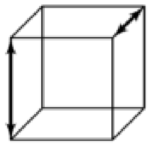
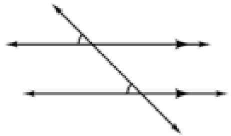
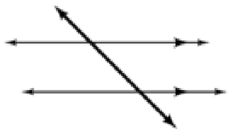
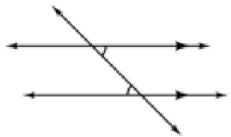
Theorem 9 Converse of the Corresponding Angles Theorem

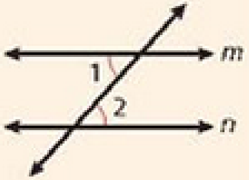
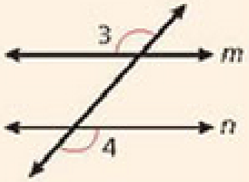
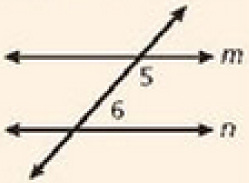
Theorem	If . . .	Then . . .
If two lines and a transversal form corresponding angles that are congruent, then the lines are parallel.	$\angle 2 \cong \angle 6$ 	$\ell \parallel m$

You will prove Theorem 9 in Lesson 13-5.

Concept List

alternate exterior angles | corresponding angles | transversal | same-side interior angles | plane | parallel lines | parallel planes | skew lines | alternate interior angles

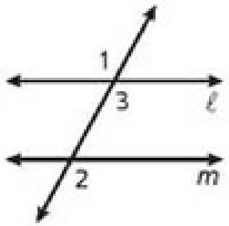
1. 	2. 	3. 
4. 	5. 	6. 
7. 	8. 	9. 

HYPOTHESIS	CONCLUSION
$\angle 1 \cong \angle 2$ 	$m \parallel n$
$\angle 3 \cong \angle 4$ 	$m \parallel n$
$m\angle 5 + m\angle 6 = 180°$ 	$m \parallel n$

Organize this paragraph proof into a two-column proof.

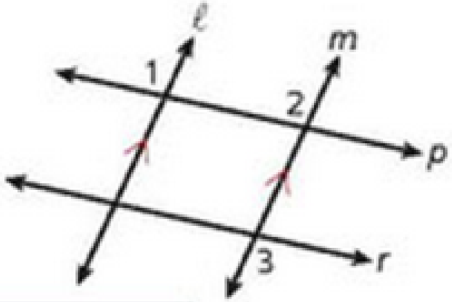
PROOF **Converse of the Alternate Exterior Angles Theorem**

Given: $\angle 1 \cong \angle 2$
Prove: $\ell \parallel m$
Proof: It is given that $\angle 1 \cong \angle 2$. Vertical angles are congruent, so $\angle 1 \cong \angle 3$. By the Transitive Property of Congruence, $\angle 2 \cong \angle 3$. So $\ell \parallel m$ by the Converse of the Corresponding Angles Postulate.



Proving Lines Parallel

Given: $\ell \parallel m$, $\angle 1 \cong \angle 3$
Prove: $r \parallel p$



Proof:

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

$\angle 1 \cong \angle 3$

Trans. Prop. of $\cong$

Given

Corr. ∡ Post.

$\ell \parallel m$

Given

$\angle 2 \cong \angle 3$

$\angle 1 \cong \angle 2$

Conv. of Alt. Ext. ∡ Thm.

$r \parallel p$