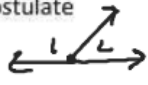


# Proofs Using Lines Parallel

Linear Pair Postulate



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

Definition of Perpendicular Lines.

Lines that intersect to form Right angles

Right Angle

Angle that measures  $90^\circ$

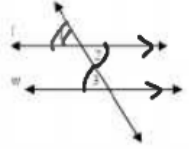
All Right Angles are Congruent

## Parallel Lines Proof Worksheet

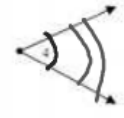
Name \_\_\_\_\_

Write a 2 column or flow proof on your own paper.

1. Given:  $l \parallel m$ ;  $\angle 2 \cong \angle 4$   
Prove:  $\angle 4 \cong \angle 3$



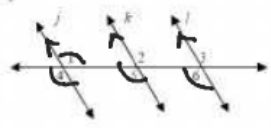
2. Given:  $l \parallel m$ ;  $\angle 1 \cong \angle 4$   
Prove:  $\angle 3 \cong \angle 4$



Statement	Reason
1) $l \parallel m$ ; $\angle 2 \cong \angle 4$	1) Given
2) $\angle 2 \cong \angle 3$	2) Alt Interior $\angle$ 's
3) $\angle 3 \cong \angle 4$	3) Substitution prop.

Statement	Reason
1) $l \parallel m$ $\angle 1 \cong \angle 4$	1) Given
2) $\angle 1 \cong \angle 3$	2) Corresponding $\angle$ 's are $\cong$
3) $\angle 3 \cong \angle 4$	3) Substitution prop.

3. Given:  $j \parallel k$ ,  $k \parallel l$   
Prove:  $\angle 1 \cong \angle 3$



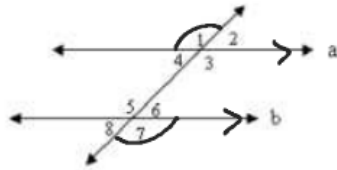
4. Given:  $j \parallel k$ ,  $k \parallel l$   
Prove:  $\angle 1 \cong \angle 6$

Statement	Reason
1) $j \parallel k$ $k \parallel l$	1) Given
2) $\angle 1 \cong \angle 2$	2) Corresponding $\angle$ 's are $\cong$
3) $\angle 2 \cong \angle 3$	3) Corresponding $\angle$ 's are $\cong$
4) $\angle 1 \cong \angle 3$	4) Substitution prop.

Statement	Reason
1) $j \parallel k$ ; $k \parallel l$	1) Given
2) $\angle 1 \cong \angle 4$	2) Vertical $\angle$ 's are $\cong$
3) $\angle 4 \cong \angle 5$	3) Corresponding $\angle$ 's are $\cong$
4) $\angle 5 \cong \angle 6$	4) Corresponding $\angle$ 's are $\cong$ .

## Proving Parallel Lines

Given:  $m\angle 1 = m\angle 7$   
 Prove:  $\angle 3 \cong \angle 5$



Statement	Reason
1) $m\angle 1 = m\angle 7$	1) Given
2) $a \parallel b$	2) Alternate exterior $\angle$ 's are $\cong$ .
3) $\angle 3 \cong \angle 5$	3) Alternate interior $\angle$ 's are $\cong$ .

Given:  $g \parallel h$ ,  $\angle 1 \cong \angle 2$

Prove:  $p \parallel r$

