

Given: $\overline{LK} \cong \overline{NM}$, $\overline{KJ} \cong \overline{MJ}$

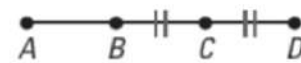
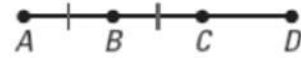
Prove: $\overline{LJ} \cong \overline{NJ}$

Proof:



Statement	Reason
1) $\overline{LK} \cong \overline{NM}$, $\overline{KJ} \cong \overline{MJ}$	1) Given
2) $LK = NM$, $KJ = MJ$	2) Def of \cong seg
3) $JN = JM + MN$ $JL = JK + KL$	3) Segment Add Post.
4) $JN = JL$	4) Sub prop.
5) $\overline{JN} \cong \overline{JL}$	5) Def of \cong seg.

GIVEN: B is the midpoint of \overline{AC} .
 C is the midpoint of \overline{BD} .



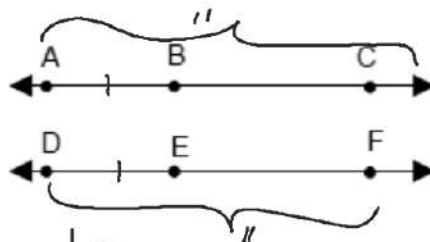
PROVE: $AB \cong CD$

Statement	Reason
1) B is midpt of \overline{AC} C is midpt of \overline{BD}	1) Given
2) $AB = BC$ $BC = CD$	2) Def of midpt
3) $AB = CD$	3) Trans prop

Example 2: Write a two-column proof.

Given: $\overline{AC} \cong \overline{DF}$ and $\overline{AB} \cong \overline{DE}$

Prove: $\overline{BC} \cong \overline{EF}$



$$3+2=5$$

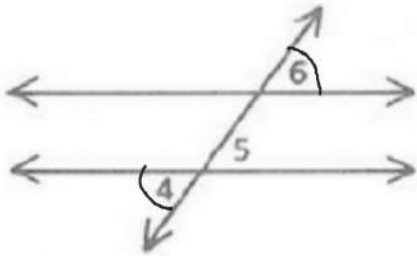
$$4+1=5$$

$$3+2=4+1$$

Statement	Reason
1) $\overline{AC} \cong \overline{DF}$ $\overline{AB} \cong \overline{DE}$	1) Given
2) $\overline{AC} = \overline{DF}$ $\overline{AB} = \overline{DE}$	2) Def of \cong Seg
3) $AC = AB + BC$ $DF = DE + EF$	3) Segment Add post.
4) $AB + BC = DE + EF$	4) Sub prop
5) $BC = EF$	5) Subtraction prop.
6) $\overline{BC} \cong \overline{EF}$	6) Def \cong Seg.

Given: $\angle 4 \cong \angle 6$

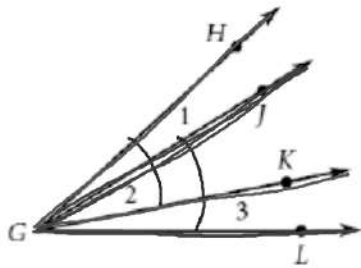
Prove: $\angle 5 \cong \angle 6$



Statement	Reason
1) $\angle 4 \cong \angle 6$	1) Given
2) $\angle 4 \cong \angle 5$	2) Vertical \angle 's \cong .
3) $\angle 5 \cong \angle 6$	3) Sub prop.

Given: $m\angle HGK = m\angle JGL$

Prove: $m\angle 1 = m\angle 3$

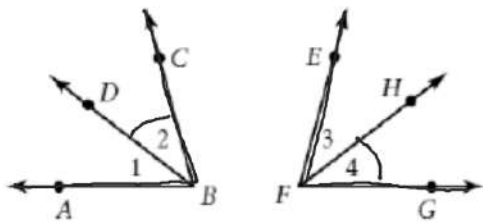


Statement	Reason
1) $m\angle HGK = m\angle JGL$	1) Given
2) $m\angle HGK = m\angle 1 + m\angle 2$ $m\angle JGL = m\angle 2 + m\angle 3$	2) Angle Add post
3) $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$ $\quad \quad \quad -m\angle 2 \quad +m\angle 2$	3) Sub prop.
4) $m\angle 1 = m\angle 3$	4) Subtr prop.

Given: $\angle ABC \cong \angle EFG$

$\angle 1 \cong \angle 3$

Prove: $\angle 2 \cong \angle 4$



Statement	Reason
1) $\angle ABC \cong \angle EFG$ $\angle 1 \cong \angle 3$	1) Given
2) $m\angle ABC = m\angle EFG$ $m\angle 1 = m\angle 3$	2) Def \cong \angle 's.
3) $m\angle ABC = m\angle 1 + m\angle 2$ $m\angle EFG = m\angle 3 + m\angle 4$	3) Angle Add post
4) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	4) Sub prop
5) $m\angle 2 = m\angle 4$	5) Subtr prop
6) $\angle 2 \cong \angle 4$	6) Def \cong \angle 's.