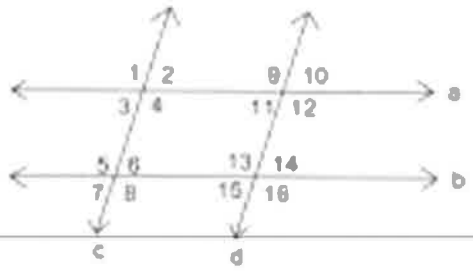
1. Given: $a \parallel b$; $c \parallel d$

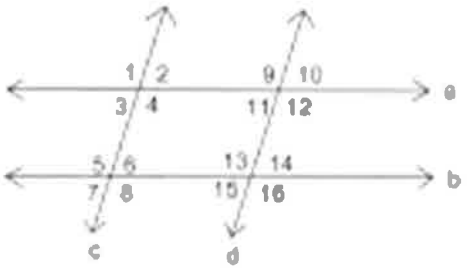
Prove: $\angle 1 \cong \angle 13$



Statements	Reasons
1. $a \parallel b$; $c \parallel d$	1. Given
2. $\angle 1 \cong \angle 12$	2. Alt. Ext. $\angle$'s Theorem
3. $\angle 12 \cong \angle 13$	3. Alt Interior $\angle$'s Theorem
4. $\angle 1 \cong \angle 13$	4. Transitive Property

2. Given: $a \parallel b$

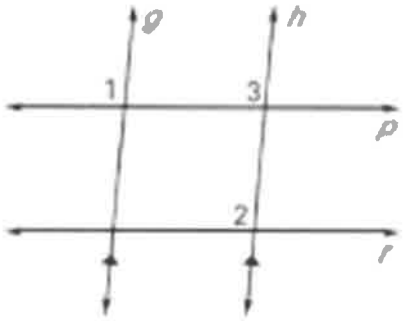
Prove: $m\angle 9 + m\angle 14 = 180°$



Statements	Reasons
1. $a \parallel b$	1. Given
2. $m\angle 9 + m\angle 11 = 180°$	2. def. of linear pair
3. $m\angle 11 = m\angle 14$	3. alt. int. $\angle$'s theorem
4. $m\angle 9 + m\angle 14 = 180°$	4. substitution

3. **GIVEN:** $g \parallel h$, $\angle 1 \cong \angle 2$
PROVE: $p \parallel r$

Statements	Reasons
1. $g \parallel h$, $\angle 1 \cong \angle 2$	1. given
2. $\angle 1 \cong \angle 3$	2. corresponding $\angle$'s post.
3. $\angle 2 \cong \angle 3$	3. transitive
4. $p \parallel r$	4. corresponding $\angle$'s converse



4. Given: $g \parallel h$; $\angle 1 \cong \angle 5$

Prove: $\angle 5 \cong \angle 3$

Statements	Reasons
1) $g \parallel h$, $\angle 1 \cong \angle 5$	1) Given
2) $\angle 1 \cong \angle 3$	2) corresponding $\angle$'s post
3) $\angle 5 \cong \angle 3$	3) transitive property

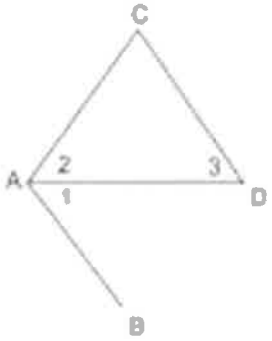
5. Given: $g \parallel h$; $\angle 6$ & $\angle 3$ are supplementary

Prove: $\angle 6 \cong \angle 2$

Statements	Reasons
1) $g \parallel h$, $\angle 6$ and $\angle 3$ are supplementary	1) given
2) $\angle 2$ and $\angle 3$ are supplementary	2) consecutive interior $\angle$'s theorem
3) $\angle 6 \cong \angle 2$	3) substitution

6. Given: $\overline{CD} \parallel \overline{AB}$; $\angle 2 \cong \angle 1$

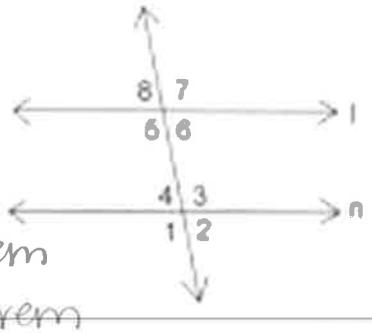
Prove: $\angle 2 \cong \angle 3$



Statements	Reasons
1) $\overline{CD} \parallel \overline{AB}$, $\angle 2 \cong \angle 1$	1) Given
2) $\angle 1 \cong \angle 3$	2) Alt. Int. $\angle$'s Theorem
3) $\angle 2 \cong \angle 3$	3) Transitive property

7. Given: $l \parallel n$

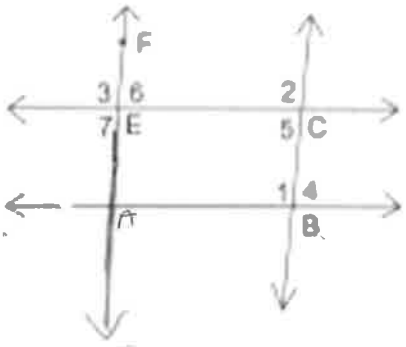
Prove: $m\angle 2 + m\angle 7 = 180°$



Statements	Reasons
1) $l \parallel n$	1) Given
2) $\angle 2 \cong \angle 4$	2) vertical $\angle$'s theorem
3) $\angle 4 \cong \angle 6$	3) alt int $\angle$'s theorem
4) $\angle 2 \cong \angle 6$	4) transitive
5) $m\angle 6 + m\angle 7 = 180$	5) def of linear pair
6) $m\angle 2 + m\angle 7 = 180$	6) substitution

8. Given: $\overline{AB} \parallel \overline{EC}$; $\overline{BC} \parallel \overline{EF}$

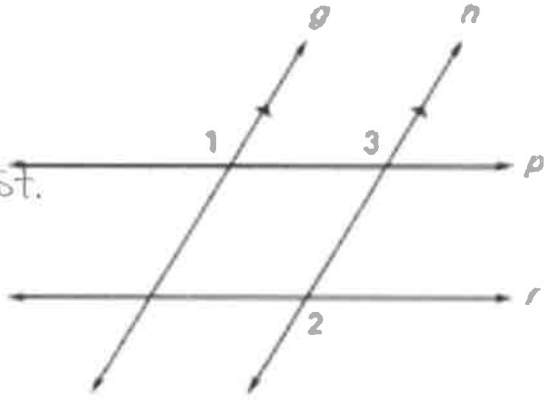
Prove: $\angle 7 \cong \angle 4$



Statements	Reasons
1) $\overline{AB} \parallel \overline{EC}$, $\overline{BC} \parallel \overline{EF}$	1) Given
2) $\angle 5 \cong \angle 4$	2) Alt. Int. $\angle$'s Thm.
3) $\angle 7 \cong \angle 5$	3) Corr. $\angle$'s post.
4) $\angle 7 \cong \angle 4$	4) transitive property

9. GIVEN: $g \parallel h$, $\angle 1 \cong \angle 2$

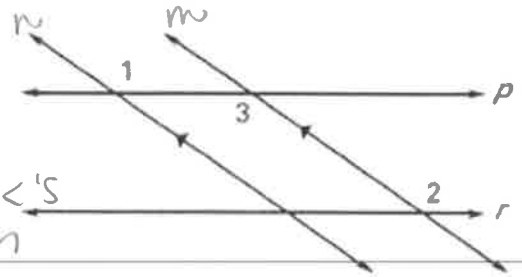
PROVE: $p \parallel r$



Statements	Reasons
1) $g \parallel h$, $\angle 1 \cong \angle 2$	1) Given
2) $\angle 1 \cong \angle 3$	2) corr. $\angle$'s post.
3) $\angle 2 \cong \angle 3$	3) transitive prop.
4) $p \parallel r$	4) alt. ext. $\angle$'s converse

10. **GIVEN:** $n \parallel m$, $\angle 1 \cong \angle 2$

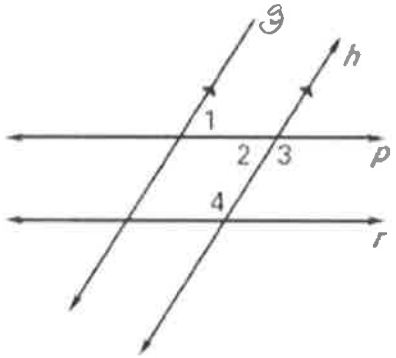
PROVE: $p \parallel r$



Statements	Reasons
1) n ∥ m, ∠1 ≅ ∠2	1) Given
2) ∠1 ≅ ∠3	2) alt. int. ∠'s theorem
3) ∠2 ≅ ∠3	3) transitive property
4) p ∥ r	4) alt. int. ∠'s converse

11. **GIVEN:** $g \parallel h$, $\angle 1$ and $\angle 4$ are supplementary

PROVE: $p \parallel r$



Statements	Reasons
1) g ∥ h, ∠1 and ∠4 are supplementary	1) Given
2) ∠1 ≅ ∠2	2) alt. int. ∠'s theorem
3) ∠2 and ∠4 are supplementary	3) substitution
4) p ∥ r	4) consecutive interior ∠'s converse