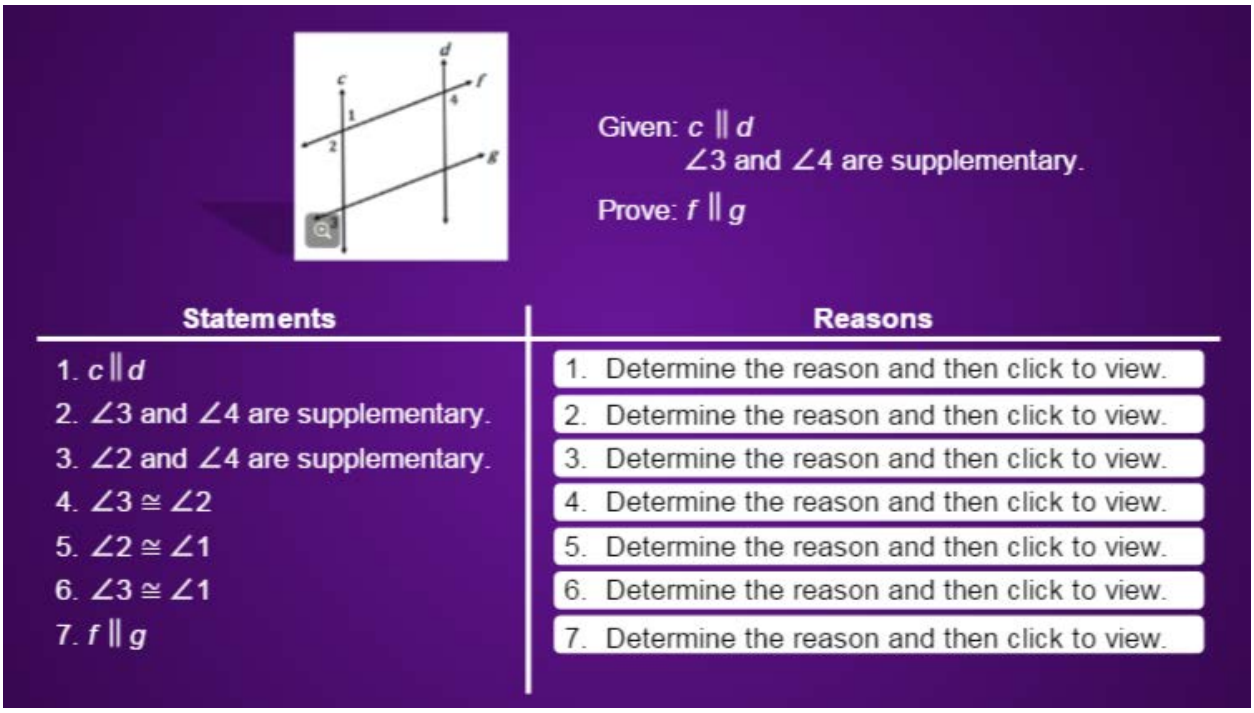
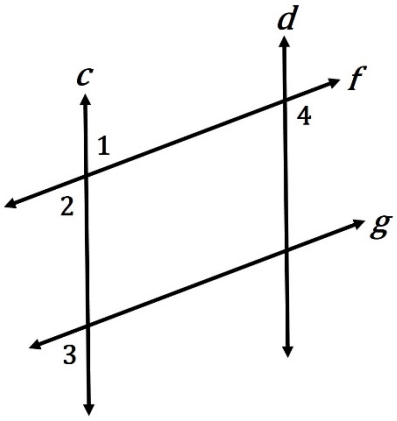
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 3: Proving Parallel Lines in a Two-Column Proof



Determine the reasons for the following proof.



Given: $c \parallel d$
$\angle 3$ and $\angle 4$ are supplementary.
Prove: $f \parallel g$

Statements	Reasons
1. $c \parallel d$	1. Determine the reason and then click to view.
2. $\angle 3$ and $\angle 4$ are supplementary.	2. Determine the reason and then click to view.
3. $\angle 2$ and $\angle 4$ are supplementary.	3. Determine the reason and then click to view.
4. $\angle 3 \cong \angle 2$	4. Determine the reason and then click to view.
5. $\angle 2 \cong \angle 1$	5. Determine the reason and then click to view.
6. $\angle 3 \cong \angle 1$	6. Determine the reason and then click to view.
7. $f \parallel g$	7. Determine the reason and then click to view.

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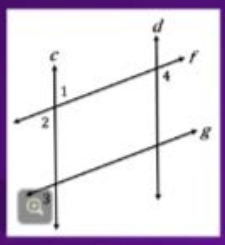
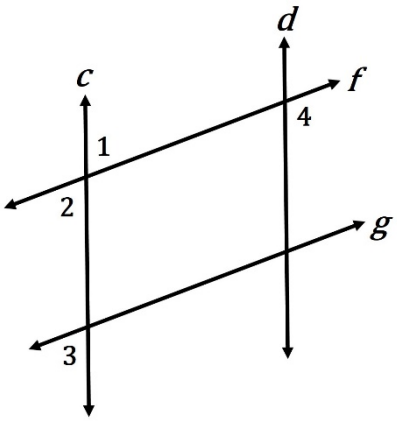


Given: $c \parallel d$
$\angle 3$ and $\angle 4$ are supplementary.

Prove: $f \parallel g$

Statements	Reasons
1. $c \parallel d$	1. Given
2. $\angle 3$ and $\angle 4$ are supplementary.	2. Given
3. $\angle 2$ and $\angle 4$ are supplementary.	3. Same-side exterior angles are supplementary.
4. $\angle 3 \cong \angle 2$	4. Supplements of the same angle are congruent.
5. $\angle 2 \cong \angle 1$	5. Vertical angles are congruent.
6. $\angle 3 \cong \angle 1$	6. Transitive Property of Congruence
7. $f \parallel g$	7. If alternate exterior angles are congruent, then a transversal intersected two parallel lines.



Given: $c \parallel d$
$\angle 3$ and $\angle 4$ are supplementary.

Prove: $f \parallel g$

Statements	Reasons
1. $c \parallel d$	1. Given
2. $\angle 3$ and $\angle 4$ are supplementary.	2. Given
3. $\angle 2$ and $\angle 4$ are supplementary.	3. Same-side exterior angles are supplementary.
4. $\angle 3 \cong \angle 2$	4. Supplements of the same angle are congruent.
5. $\angle 2 \cong \angle 1$	5. Vertical angles are congruent.
6. $\angle 3 \cong \angle 1$	6. Transitive Property of Congruence
7. $f \parallel g$	7. If alternate exterior angles are congruent, then a transversal intersected two parallel lines.