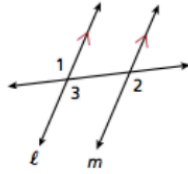


2-Column Proofs Proving Lines Parallel

Complete the two-column proof of the Alternate Exterior Angles Theorem.

Given: $\ell \parallel m$
 Prove: $\angle 1 \cong \angle 2$
 Proof:



Statements	Reasons
1. $\ell \parallel m$	1. Given
2. a. $\angle 1 \cong \angle 3$	2. Vert. Δ Thm.
3. $\angle 3 \cong \angle 2$	3. b. <u>Corr. \angle's \cong</u>
4. c. $\angle 1 \cong \angle 2$	4. d. <u>Trans. Prop. of \cong</u>

Complete the following two-column proof.

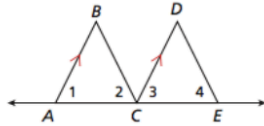
Given: $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 1$
 Prove: $XY \parallel WV$
 Proof:



Statements	Reasons
1. $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 1$	1. Given
2. $\angle 2 \cong \angle 3$	2. a. <u>Trans. Prop. \cong</u>
3. b. <u>$XY \parallel WV$</u>	3. c. <u>Conv. alt int \angle's</u>

Complete the following two-column proof.

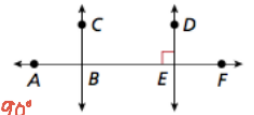
Given: $\overline{AB} \parallel \overline{CD}$, $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$
 Prove: $\overline{BC} \parallel \overline{DE}$
 Proof:



Statements	Reasons
1. $\overline{AB} \parallel \overline{CD}$	1. Given
2. $\angle 1 \cong \angle 3$	2. a. <u>Alt int \angle's Thm.</u>
3. $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$	3. b. <u>Given</u>
4. $\angle 2 \cong \angle 4$	4. c. <u>Trans. Prop. \cong</u>
5. d. <u>$BC \parallel DE$</u>	5. e. <u>Conv. Alt int \angle's</u>

Complete the two-column proof.

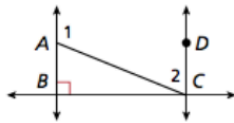
Given: $\angle ABC \cong \angle CBE$, $\overline{DE} \perp \overline{AF}$
 Prove: $\overline{CB} \parallel \overline{DE}$
 Proof:



Statements	Reasons
1. $\angle ABC \cong \angle CBE$	1. Given
2. $\overline{CB} \perp \overline{AF}$	2. a. <u>def. of \perp lines</u>
3. b. <u>$DE \perp AF$</u>	3. Given
4. $\overline{CB} \parallel \overline{DE}$	4. c. <u>lines \perp to same line are \parallel.</u>

Complete the two-column proof below.

Given: $\overline{AB} \perp \overline{BC}$, $m\angle 1 + m\angle 2 = 180^\circ$
 Prove: $\overline{BC} \perp \overline{CD}$
 Proof:



Statements	Reasons
1. $\overline{AB} \perp \overline{BC}$	1. Given
2. $m\angle 1 + m\angle 2 = 180^\circ$	2. a. <u>def. of \perp lines</u>
3. $\angle 1$ and $\angle 2$ are supplementary.	3. Def. of supplementary
4. b. <u>$AB \parallel CD$</u>	4. Converse of the Same-Side Interior Angles Theorem
5. $\overline{BC} \perp \overline{CD}$	5. c. <u>lines \perp to same line are \parallel.</u>