

2-6: Geometric Proofs
“I WILL ...
...develop geometric proofs.”

I. Definitions

A. Key Elements of a Two-Column Proof

1. Given
2. Diagram
3. Prove
4. Statements
5. Reasons

B. The hierarchy of geometric proofs

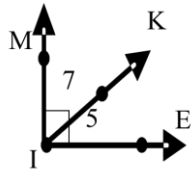
1. Hypothesis
2. Definitions, Postulates, Properties, Theorems
3. Conclusion

<p>Ex 1: D is midpoint of \overline{EF}. $ED = 4x + 6$ and $DF = 7x - 9$. Solve for ED. Write a two-column proof</p>	<p>Ex 2: B is midpoint of \overline{AC}. $\overline{AB} = 2x + 1$ and $\overline{BC} = 3x - 4$. Solve for \overline{AC} using a proof.</p>
<p>Ex 3: B is between A and C. $AB = 3x - 4$, $BC = 2x - 1$, and $AC = 5x$. Find AC and justify answer using a proof.</p>	<p>Your Turn: A is midpoint of \overline{BC}. $\overline{AB} = 6(x - 4)$ and $\overline{BC} = 2x$. Solve for \overline{RT} using a proof.</p>

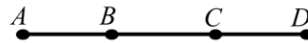
Ex 4: Given: $\angle 1$ is supplementary to $\angle 2$, $\angle 3$ is supplementary to $\angle 4$, and $\angle 2 \cong \angle 4$. Prove: $\angle 1 \cong \angle 3$

Ex 5: Given: $\angle BAC$ is a right angle. $\angle 2 \cong \angle 3$. Prove: $\angle 1$ and $\angle 3$ are complementary.

Your Turn: Given: $\angle 5$ is complementary to $\angle 7$.
Prove: $\overline{MI} \perp \overline{IE}$



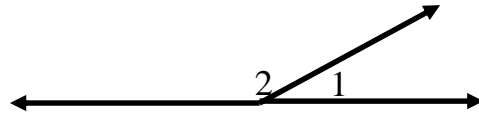
Ex 6: Given: $\overline{AC} \cong \overline{BD}$
Prove: $AB = CD$



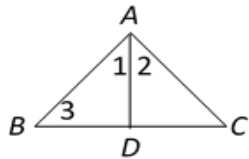
Ex 7: Given: $\angle 1$ and $\angle 2$ are complementary
 $\angle 1 \cong \angle 3$
 Prove: $\angle 3$ & $\angle 2$ are complementary



Your Turn: Given: $m\angle 1 = 30^\circ$
 Prove: $m\angle 2 = 150^\circ$



Ex 8: Given: \overline{AD} bisects $\angle BAC$, $\angle 1 \cong \angle 3$
 Prove: $\angle 2 \cong \angle 3$



Your Turn: Given: $\angle ABC$ is a right angle;
 Prove: $\angle 1$ & $\angle 2$ are complementary Angles

