

**LESSON**  
**2-4**

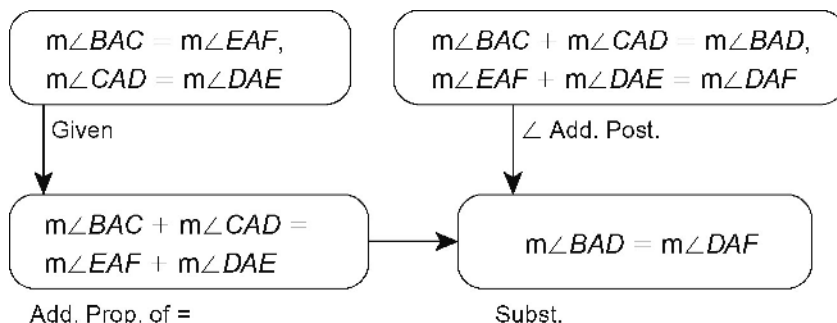
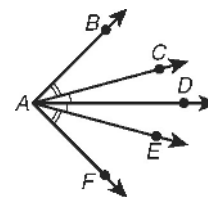
# Practice A

## Flowchart and Paragraph Proofs

1. Use the given flowchart proof to complete the two-column proof.

**Given:**  $m\angle BAC = m\angle EAF$ ,  $m\angle CAD = m\angle DAE$

**Prove:**  $m\angle BAD = m\angle DAF$

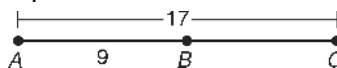


Statements	Reasons
1. $m\angle BAC = m\angle EAF$ , $m\angle CAD = m\angle DAE$	1. a. _____
2. b. _____ _____	2. Add. Prop. of =
3. $m\angle BAC + m\angle CAD = m\angle BAD$ , $m\angle EAF + m\angle DAE = m\angle DAF$	3. $\angle$ Add. Post.
4. $m\angle BAD = m\angle DAF$	4. c. _____

2. Miguel breaks a 17-centimeter-long pencil into two pieces. One of the pieces is 9 centimeters long. Use the given paragraph proof to complete the two-column proof showing that the other piece is 8 centimeters long.

**Given:**  $AC = 17$ ,  $AB = 9$

**Prove:**  $BC = 8$



By the Segment Addition Postulate, the sum of  $AB$  and  $BC$  equals  $AC$ . That is,  $AB + BC = AC$ . It is given that  $AC = 17$  and  $AB = 9$ . Substitution leaves the equation  $9 + BC = 17$ . Using the Subtraction Property of Equality to take 9 away from both sides shows that  $BC = 8$ .

Statements	Reasons
1. $AB + BC = AC$	1. a. _____
2. $AC = 17$ , $AB = 9$	2. Given
3. b. _____	3. Subst.
4. c. _____	4. Subtr. Prop. of =

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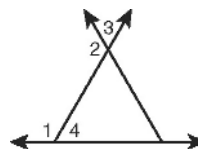
**Practice B**

**Flowchart and Paragraph Proofs**

1. Use the given two-column proof to write a flowchart proof.

**Given:**  $\angle 4 \cong \angle 3$

**Prove:**  $m\angle 1 = m\angle 2$

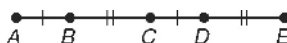


Statements	Reasons
1. $\angle 1$ and $\angle 4$ are supplementary, $\angle 2$ and $\angle 3$ are supplementary.	1. Linear Pair Thm.
2. $\angle 4 \cong \angle 3$	2. Given
3. $\angle 1 \cong \angle 2$	3. $\cong$ Supps. Thm.
4. $m\angle 1 = m\angle 2$	4. Def. of $\cong \angle$

2. Use the given two-column proof to write a paragraph proof.

**Given:**  $AB = CD, BC = DE$

**Prove:** C is the midpoint of  $\overline{AE}$ .



Statements	Reasons
1. $AB = CD, BC = DE$	1. Given
2. $AB + BC = CD + DE$	2. Add. Prop. of =
3. $AB + BC = AC, CD + DE = CE$	3. Seg. Add. Post.
4. $AC = CE$	4. Subst.
5. $\overline{AC} \cong \overline{CE}$	5. Def. of $\cong$ segs.
6. C is the midpoint of $\overline{AE}$ .	6. Def. of mdpt.

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