

## 2-7 Skills Practice

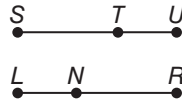
### Proving Segment Relationships

Justify each statement with a property of equality, a property of congruence, or a postulate.

- $QA = QA$
- If  $\overline{AB} \cong \overline{BC}$  and  $\overline{BC} \cong \overline{CE}$  then  $\overline{AB} \cong \overline{CE}$ .
- If  $Q$  is between  $P$  and  $R$ , then  $PR = PQ + QR$ .
- If  $AB + BC = EF + FG$  and  $AB + BC = AC$ , then  $EF + FG = AC$ .

**PROOF** Complete each proof.

5. Given:  $\overline{SU} \cong \overline{LR}$   
 $\overline{TU} \cong \overline{LN}$



Prove:  $\overline{ST} \cong \overline{NR}$

**Proof:**

Statements	Reasons
a. $\overline{SU} \cong \overline{LR}, \overline{TU} \cong \overline{LN}$	a. _____
b. _____	b. Definition of $\cong$ segments
c. $SU = ST + TU$ $LR = LN + NR$	c. _____
d. $ST + TU = LN + NR$	d. _____
e. $ST + LN = LN + NR$	e. _____
f. $ST + LN - LN = LN + NR - LN$	f. _____
g. _____	g. Substitution Property
h. $\overline{ST} \cong \overline{NR}$	h. _____

6. Given:  $\overline{AB} \cong \overline{CD}$

Prove:  $\overline{CD} \cong \overline{AB}$

**Proof:**

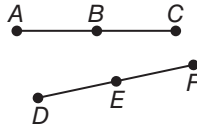
Statements	Reasons
a. _____	a. Given
b. $AB = CD$	b. _____
c. $CD = AB$	c. _____
d. _____	d. Definition of $\cong$ segments

# 2-7 Practice

## Proving Segment Relationships

Complete the following proof.

1. **Given:**  $\overline{AB} \cong \overline{DE}$   
 $B$  is the midpoint of  $\overline{AC}$ .  
 $E$  is the midpoint of  $\overline{DF}$ .



**Prove:**  $\overline{BC} \cong \overline{EF}$

**Proof:**

Statements	Reasons
a. _____ _____	a. Given
b. $AB = DE$	b. _____
c. _____ _____	c. Definition of Midpoint
d. $BC = DE$	d. _____
e. $BC = EF$	e. _____
f. _____	f. _____

2. **TRAVEL** Refer to the figure. DeAnne knows that the distance from Grayson to Apex is the same as the distance from Redding to Pine Bluff. Prove that the distance from Grayson to Redding is equal to the distance from Apex to Pine Bluff.

