**1.** Copy and complete the proof.

Given: $\overline{PQ} \cong \overline{RS}, \overline{QS} \cong \overline{ST}$

Prove: $\overline{PS} \cong \overline{RT}$

Proof:
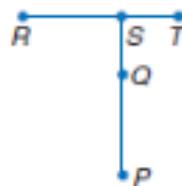
Statements	Reasons
a. __?__ , __?__ $\overline{PQ} \cong \overline{RS}, \overline{QS} \cong \overline{ST}$	a. Given
b. $PQ = RS, QS = ST$	b. __?__ Def. of $\cong$ segments
c. $PS = PQ + QS, RT = RS + ST$	c. __?__ Segment Addition Post.
d. __?__ $PS = RS + ST$	d. Substitution Property
e. __?__ $PS = RT$	e. Substitution Property
f. $\overline{PS} \cong \overline{RT}$	f. __?__ Def. of $\cong$ segments

**6. Given:** $AB = BC$

Prove: $AC = 2BC$

Proof:

Statements (Reasons)

1. $AB = BC$ (Given)
2. $AC = AB + BC$ (Seg. Add. Post.)
3. $AC = BC + BC$ (Substitution)
4. $AC = 2BC$ (Substitution)

Proof.

Statements (Reasons)

1. $\overline{LM} \cong \overline{PN}$ and $\overline{XM} \cong \overline{XN}$ (Given)
2. $LM = PN$ and $XM = XN$ (Def. of $\cong$ se
3. $LM = LX + XM, PN = PX + XN$ (Seg
4. $LX + XM = PX + XN$ (Substitution)
5. $LX + XN = PX + XN$ (Substitution)
6. $XN = XN$ (Reflexive Prop.)
7. $LX = PX$ (Subt. Prop.)
8. $\overline{LX} \cong \overline{PX}$ (Def. of $\cong$ segs.)

9. Given: $\overline{XY} \cong \overline{WZ}$ and $\overline{WZ} \cong \overline{AB}$

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

2. Given: $\overline{AP} \cong \overline{CP}; \overline{BP} \cong \overline{DP}$

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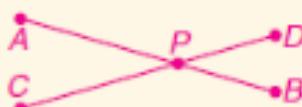
Proof:

Statements (Reasons)

1. $\overline{AP} \cong \overline{CP}$ and $\overline{BP} \cong \overline{DP}$ (Given)
2. $AP = CP$ and $BP = DP$ (Def. of $\cong$ segs.)
3. $AP + PB = AB$ (Seg. Add. Post.)
4. $CP + DP = AB$ (Substitution)
5. $CP + DP = CD$ (Seg. Add. Post.)
6. $AP + PB = CP + DP$ (Substitution)
7. $AB = CD$ (Substitution)
8. $\overline{AB} \cong \overline{CD}$ (Def. of $\cong$ segs.)

3. Copy and complete the proof.

Given: $\overline{WY} \cong \overline{ZX}$

A is the midpoint of $\overline{WY}$.

A is the midpoint of $\overline{ZX}$.

Prove: $\overline{WA} \cong \overline{ZA}$

Proof:

Statements	Reasons
a. $\overline{WY} \cong \overline{ZX}$, A is the midpoint of $\overline{WY}$, A is the midpoint of $\overline{ZX}$.	a. __?__ Given
b. $WY = ZX$	b. __?__ Def. of $\cong$ segments
c. __?__ $WA = AY, ZA = AX$	c. Def. of midpoint
d. $WY = WA + AY, ZX = ZA + AX$	d. __?__ Seg. Add. Post.
e. $WA + AY = ZA + AX$	e. __?__ Substitution
f. $WA + WA = ZA + ZA$	f. __?__ Substitution
g. $2WA = 2ZA$	g. __?__ Substitution
h. __?__ $WA = ZA$	h. Division Property
i. $\overline{WA} \cong \overline{ZA}$	i. __?__ Def. of $\cong$ segments
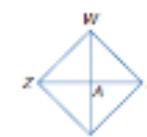
10. Given: $\overline{AB} \cong \overline{DE}$, C is the midpoint of $\overline{BD}$.

Prove: $\overline{AC} \cong \overline{CE}$
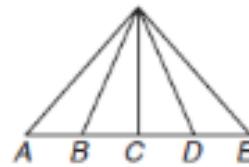
Proof:

Statements (Reasons)

1. $\overline{AB} \cong \overline{DE}$, C is the midpoint of $\overline{BD}$. (Given)
2. $BC = CD$ (Def. of midpoint)
3. $AB = DE$ (Def. of $\cong$ segs.)
4. $AB + BC = CD + DE$ (Add. Prop.)
5. $AB + BC = AC, CD + DE = CE$ (Seg. Add. Post.)
6. $AC = CE$ (Substitution)
7. $\overline{AC} \cong \overline{CE}$ (Def. of $\cong$ segs.)