pg. 246 - 248 Even Solutions

6. Given: $\angle ABD \cong \angle CBD$, $\angle BDA \cong \angle BDC$ Prove: $\overline{AB} \cong \overline{CB}$

Statements		Reasons
1.	$\angle ABD \cong \angle CBD$, $\angle BDA \cong \angle BDC$	1. Given
2.	$\overline{DB} \cong \overline{DB}$	2. Reflexive Property
3.	$\Delta IGH \cong \Delta ITV$	3. ASA
4.	$\overline{AB} \cong \overline{CB}$	4. CPCTC

10. Given: $\overline{YT} \cong \overline{YP}, \angle C \cong \angle R$, $\angle T \cong \angle P$ Prove: $\overline{CT} \cong \overline{RP}$

Statements		Reasons
1.	$\overline{YT} \cong \overline{YP}, \angle C \cong \angle R$, $\angle T \cong \angle P$	1. Given
2.	$\Delta CTY \cong \Delta RPY$	2. AAS
3.	$\overline{CT} \cong \overline{RP}$	3. CPCTC

12. Perpendicular Bisector gives you right angles, which are congruent; it also gives you congruent segments on the bottom. You would use the Reflexive property on segment KL, Proving the triangles by SAS, leading to angles P and Q being congruent by CPCTC.

16. Given: $l \perp \overline{AB}$, l bisects $\overline{AB}$ at C Prove: PA = PB

P is on l

Statements		Reasons
1.	$l \perp \overline{AB}$, l bisects $\overline{AB}$ at C P is on l	1. Given

2.	$\angle PCA$ and $\angle PCB$ are right angles	2.	Definition of Perpendicular lines
3.	$\angle PCA \cong \angle PCB$	3.	All Right Angles are Congruent
4.	$\overline{AC} \cong \overline{BC}$	4.	Definition o f Bisector
5.	$\overline{PC} \cong \overline{PC}$	5.	Reflexive Property
6.	$\Delta PCA \cong \Delta PCB$	6.	SAS
7.	$\overline{PA} \cong \overline{PB}$	7.	CPCTC
8.	PA = PB	8.	Definition of Congruence

18. Given: $\overline{BE} \perp \overline{AC}, \overline{DF} \perp \overline{AC},$ $\overline{BE} \cong \overline{DF}, \overline{AF} \cong \overline{CE}$ Prove: $\overline{AB} \cong \overline{CD}$

	Statements		Reasons
1.	$\overline{BE} \perp \overline{AC}, \overline{DF} \perp \overline{AC},$ $\overline{BE} \cong \overline{DF}$	1.	Given
2.	$\angle BEA$ and $\angle DFC$ are right $\angle$s	2.	Definition of Perpendicular Lines
3.	$\angle BEA \cong \angle DFC$	3.	All Right angles are congruent
4.	$\overline{AF} \cong \overline{CE}$	4.	Given
5.	$AF = CE$	5.	Definition of Congruence
6.	$AE + EF = AF$ $EF + CF = CE$	6.	Segment Addition Postulate
7.	$AE + EF = EF + CF$	7.	Substitution Property
8.	$AE = CF$	8.	Subtraction Property
9.	$\overline{AE} \cong \overline{CF}$	9.	Definition of Congruence
10.	$\Delta BEA \cong \Delta DFC$	10.	SAS
11.	$\overline{AB} \cong \overline{CD}$	11.	CPCTC

22. Given: $\overline{BA} \cong \overline{KA}, \overline{BE} \cong \overline{KE}$ Prove: $\overline{AB} \cong \overline{CD}$

Statements	Reasons

1.	$\overline{BA} \cong \overline{KA}, \overline{BE} \cong \overline{KE}$	1.	Given
2.	$\overline{EA} \cong \overline{EA}, \overline{SE} \cong \overline{SE}$	2.	Reflexive Property
3.	$\Delta KEA \cong \Delta BEA$	3.	SSS
4.	$\angle KEA \cong \angle BEA$	4.	CPCTC
5.	$\Delta KES \cong \Delta BES$	5.	SAS
6.	$\angle KSE \cong \angle BSE$	6.	CPCTC
7.	$\angle KSE$ and $\angle BSE$ are right angles	7.	Two congruent angles that form a linear pair must be right angles
8.	$\overline{BK} = \overline{AE}$	8.	Definition of Perpendicular

26. For < B to be a right angle, $\overline{AB} = \overline{BC}$, which means their slopes would have to be opposite reciprocals:

$\frac{9-3}{1-4} \Rightarrow \frac{6-3}{x-4}$ $\frac{6}{-3} \Rightarrow \frac{3}{x-4}$ $-2 \Rightarrow \frac{3}{x-4}$ Which means $\frac{1}{2} = \frac{3}{x-4}$

Cross Multiply $x-4=6$ $x=10$