

8. a. If 2 angles are congruent and supplementary, then they are right angles.
 b. Definition of Right Triangles
 c. Given
 d. Reflexive Property
 e. HL (Hypotenuse-Leg Theorem)

10. Given: $\overline{HV} \perp \overline{GT}, \overline{GH} \cong \overline{TV}$
 I is the midpoint of \overline{HV} Prove: $\triangle GH \cong \triangle TV$

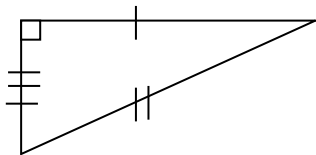
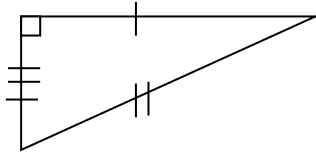
Statements	Reasons
1. $\overline{HV} \perp \overline{GT}$	1. Given
2. $\angle GIH$ and $\angle TIV$ are right \angle s	2. Definition of Perpendicular Lines
3. $\triangle GIH$ and $\triangle TIV$ are right Δ s	3. Definition of Right Triangles
4. I is the midpoint of \overline{HV}	4. Given
5. $\overline{HI} \cong \overline{IV}$	5. Definition of Midpoint
6. $\overline{GH} \cong \overline{TV}$	6. Given
7. $\triangle GH \cong \triangle TV$	7. HL

18. Given: $\triangle LNP$ is Isosceles with base \overline{NP}
 $\overline{MN} \perp \overline{NL}, \overline{QP} \perp \overline{PL}, \overline{ML} \cong \overline{QL}$ Prove: $\triangle MNL \cong \triangle QPL$

Statements	Reasons
1. $\overline{MN} \perp \overline{NL}, \overline{QP} \perp \overline{PL}$	1. Given
2. $\angle MNL$ and $\angle QPL$ are right \angle s	2. Definition of Perpendicular Lines

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| 3. | $\triangle MNL$ and $\triangle QPL$ are right \triangle s | 3. | Definition of Right Triangles |
| 4. | $\triangle LNP$ is Isosceles with base \overline{NP} | 4. | Given |
| 5. | $\overline{LN} \cong \overline{LP}$ | 5. | Definition of Isosceles Triangle |
| 6. | $\overline{ML} \cong \overline{QL}$ | 6. | Given |
| 7. | $\triangle MNL \cong \triangle QPL$ | 7. | HL |

22.



24. Given: \overline{LO} bisects $\angle MLN$
 $\overline{OM} \perp \overline{LM}, \overline{ON} \perp \overline{LN}$ Prove: $\triangle LMO \cong \triangle LNO$

Statements		Reasons	
1.	$\overline{OM} \perp \overline{LM}, \overline{ON} \perp \overline{LN}$	1.	Given
2.	$\angle LMO$ and $\angle LNO$ are right \angle s	2.	Definition of Perpendicular Lines
3.	$\triangle LMP$ and $\triangle LNO$ are right \triangle s	3.	Definition of Right Triangles
4.	\overline{LO} bisects $\angle MLN$	4.	Given
5.	$\angle MLO \cong \angle NLO$	5.	Definition of Angle Bisector
6.	$\overline{LO} \cong \overline{LO}$	6.	Reflexive Property
7.	$\triangle LMO \cong \triangle LNO$	7.	AAS

28. No; Segments AB and BC would be congruent by CPCTC, but there is not enough information given to prove that AC is congruent to them as well.

30. $m = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) = \left(\frac{2 + 5}{2}, \frac{7 + -1}{2} \right) = \left(\frac{7}{2}, \frac{6}{2} \right) = (3.5, 3)$ which is answer F