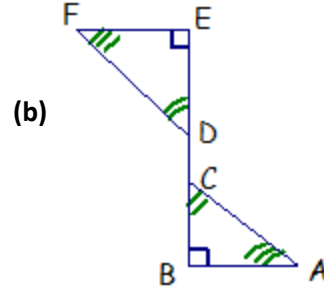
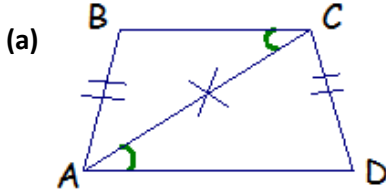


UNIT 3

LESSON 5

AIM: HOW DO WE COMPLETE PROOFS USING THE HL POSTUALTE?

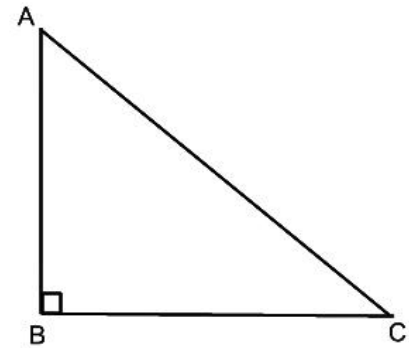
Do Now: State whether or not the triangles can be proved congruent. If yes, state the congruency method.



RULE: In order to prove triangles are congruent using HL, you must first prove that you have _____ triangles.

KEY STATEMENTS:

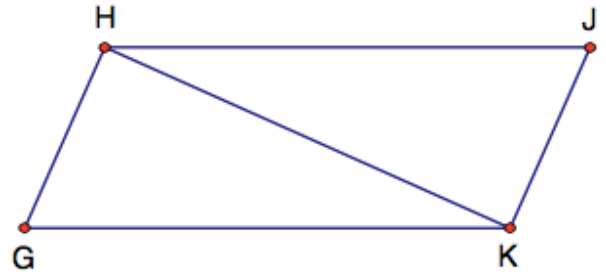
STATEMENT	REASON



EXAMPLE #1:

Given: $\overline{GH} \perp \overline{HK}, \overline{JK} \perp \overline{KH}, \overline{GK} \cong \overline{JH}$
 Prove: $\triangle GHK \cong \triangle JKH$

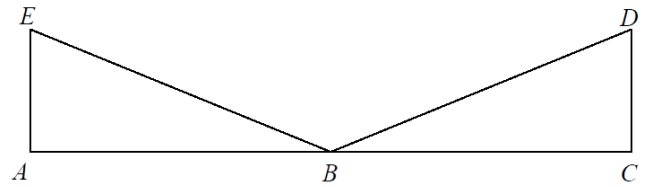
PLAN:



STATEMENT	REASON
1. $\overline{GH} \perp \overline{HK}, \overline{JK} \perp \overline{KH}, \overline{GK} \cong \overline{JH}$	1.
2.	2. Perpendicular lines form right angles.
3. $\triangle GHK$ and $\triangle JKH$ are right triangles.	3.
4.	4. $HL \cong HL$

EXAMPLE #2:

Given: $\overline{EB} \cong \overline{DB}$, $\overline{EA} \perp \overline{AC}$, $\overline{DC} \perp \overline{AC}$,
B is the midpoint of \overline{AC}
 Prove: $\triangle BEA \cong \triangle BDC$



PLAN:

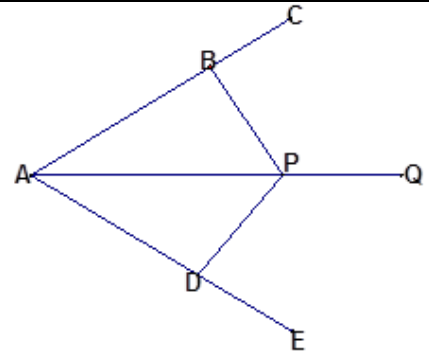
STATEMENT	REASON
1.	1. Given
2.	2. _____ lines form right angles.
3.	3. Right triangles have _____.
4.	4. A _____ creates two congruent segments.
5.	5. $HL \cong HL$

EXAMPLE #3:

Given: $\overline{PB} \perp \overline{AC}$, $\overline{PD} \perp \overline{AE}$, $\overline{AB} \cong \overline{AD}$

Prove: $\triangle ABP \cong \triangle ADP$

PLAN:

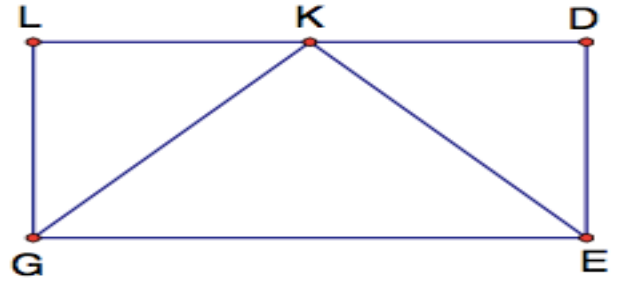


STATEMENT	REASON
1. $\overline{PB} \perp \overline{AC}$, $\overline{PD} \perp \overline{AE}$, $\overline{AB} \cong \overline{AD}$	1.
2. $\sphericalangle ABP$ and $\sphericalangle ADP$ are right angles.	2.
3. $\overline{AP} \cong \overline{AP}$	3.
4. $\triangle ABP \cong \triangle ADP$	4.

EXAMPLE #4:

Given: $\angle KGE \cong \angle KEG$, $\overline{GL} \perp \overline{LD}$, $\overline{ED} \perp \overline{DL}$ and
 K is the midpoint of \overline{LD}
Prove: $\triangle KLG \cong \triangle KDE$

PLAN:

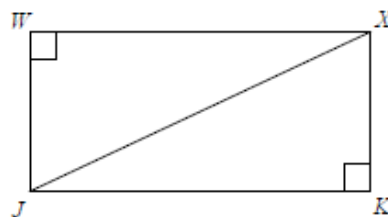


STATEMENT	REASON
1.	1.
2.	2. A midpoint creates two congruent segments.
3. $\triangle GKE$ is an isosceles triangle	3.
4.	4. Isosceles triangles have two congruent sides.
5. $\sphericalangle GLK$ and $\sphericalangle EDK$ are right angles.	5.
6. $\triangle GLK$ and $\triangle EDK$ are right triangles.	6.
7.	7.

HOMEWORK

1. Given: $\overline{WJ} \cong \overline{KX}$, $\overline{JW} \perp \overline{WX}$, $\overline{XK} \perp \overline{KJ}$

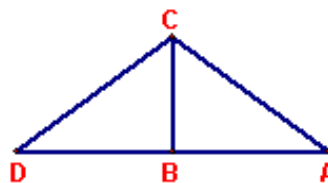
Prove: $\triangle WJX \cong \triangle KJX$



STATEMENT	REASON
1.	1.
2. $\sphericalangle W$ and $\sphericalangle K$ are right angles.	2.
3.	3. Right triangles have one right angle.
4. $\overline{JX} \cong \overline{JX}$	4.
5.	5.

2. Given: $\overline{CB} \perp \overline{DA}$ and $\overline{DC} \cong \overline{AC}$

Prove: $\triangle DCB \cong \triangle ACB$



STATEMENT	REASON
1.	1.
2.	2. Perpendicular lines form right angles.
3. $\triangle DCB$ and $\triangle ACB$ are right triangles.	3.
4.	4. Reflexive Property
5.	5.