

statements      reasons

1. DC is midpt  $\overline{AD}$  &  $\overline{BE}$  1. given

2.  $\overline{AC} \cong \overline{CD}$ ,  $\overline{BC} \cong \overline{CE}$  2. ~~diff~~ <sup>9</sup> ~~midpt~~

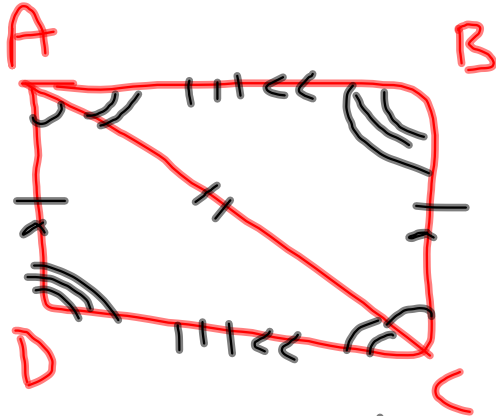
3.  $\angle ABC \cong \angle DEC$  3. vert.  $\angle$  thm.

4.  $\triangle ABC \cong \triangle DEC$  4. SAS



~~3  
1/2  
4~~

1. Given:  $\overline{AD} \cong \overline{BC}$ ,  $\overline{AD} \parallel \overline{BC}$   
 Prove:  $\triangle ABC \cong \triangle CDA$



Statement	Reasons
1. $\overline{AD} \cong \overline{BC}$	1. Given
2. $\overline{CA} \cong \overline{CA}$	2. Ref. prop $\cong$
3. $\overline{AD} \parallel \overline{BC}$	3. Given
4. $\angle DAC \cong \angle BCA$	4. AIA Thm
5. $\angle BAC \cong \angle DCA$	5. AIA thm
6. $\angle ABC \cong \angle CDA$	6. 3 <sup>rd</sup> $\angle$ 's thm
7. $\overline{AB} \parallel \overline{DC}$	7. conv. of AIA Thm
8. ABCD is a rectangle	8. opp. sides parallel
9. $\overline{AB} \cong \overline{DC}$	9. opp sides, are equal
10. $\triangle ABC \cong \triangle CDA$	10. def. of $\cong$ $\Delta$ 's

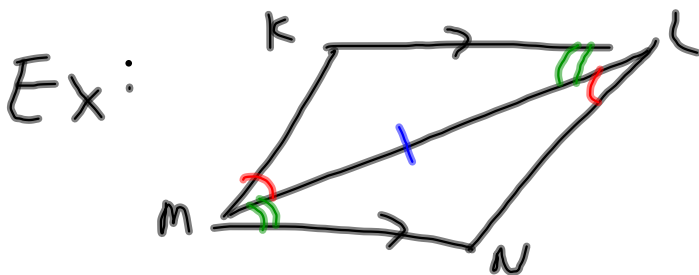
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7+-

## 4.5 ASA, AAS, HL

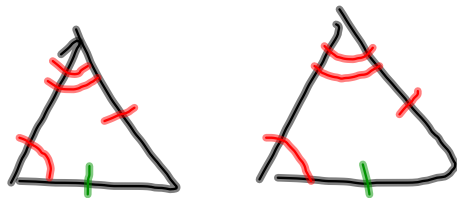
Angle-Side-Angle: if 2 angles & the included side of a  $\Delta$  are  $\cong$  to 2  $\angle$ 's & the included side of another  $\Delta$ , then the triangles are  $\cong$ .



Can you say  $\Delta KML \cong \Delta NML$ ?

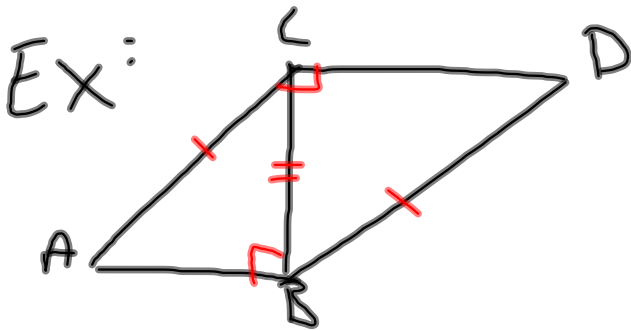
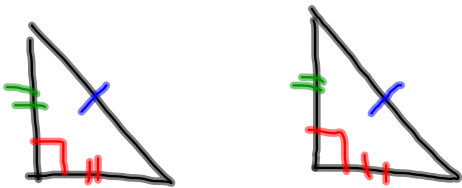
Statements	Reasons
1. $\overline{KM} \parallel \overline{LN}$	1. Given
2. $\angle KML \cong \angle NML$	2. AIA thm
3. $\angle NLM \cong \angle KLM$	3. AIA thm
4. $\overline{ML} \cong \overline{ML}$	4. Ref. prop of $\cong$
5. $\Delta KML \cong \Delta NML$	5. ASA

Angle-Angle-side: if 2 angles and the nonincluded side of one triangle are  $\cong$  to the 2  $\angle$ 's and nonincluded side of another  $\Delta$ , then the  $\Delta$ 's are  $\cong$ .



## Hypotenuse-leg (HL):

If the hypotenuse and leg of a rt.  $\Delta$  are  $\cong$  to the hypotenuse + leg of another  $\Delta$ , then the  $\Delta$ 's are  $\cong$ .



Is  $\triangle ABC \cong \triangle DCB$ ?

Statement	Reason
1. $\overline{AC} \cong \overline{BD}$	1. Given
2. $\angle PCA \cong \angle ABC$	2. Given
3. $\overline{CB} \cong \overline{CB}$	3. Ref. prop of $\cong$
4. $\triangle ABC \cong \triangle DCB$	4. HL

HW: p. 236

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skip 9, 10