

# Unit 6

## Lesson 4

More Congruence Proofs  
and  
Isosceles  $\triangle$  Theorem

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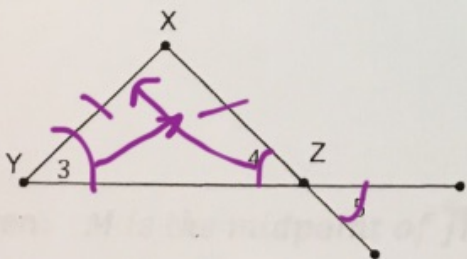
**Isosceles Triangle Theorem:** If 2 sides of a triangle are congruent, then the angles opposite those sides are congruent.

*Given sides  $\Rightarrow$  angles*

**ITT Converse:** If 2 angles of a triangle are congruent, then the sides opposite those angles are congruent.

*Given  $\angle$ 's  $\Rightarrow$  sides*

1. Given:  $\overline{YX} \cong \overline{XZ}$   
 Prove:  $\angle 3 \cong \angle 5$



	Statement	Reason
1.		Given
2.	$\angle 4 \cong \angle 5$	Vertical $\angle$ 's $\cong$
3.	$\angle 3 \cong \angle 4$	ITT
4.	$\angle 3 \cong \angle 5$	Transitive Prop

$\cong$

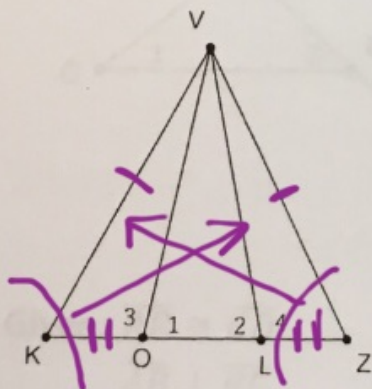
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2. Given:  $\overline{KV} \cong \overline{VZ}$

$\overline{KO} \cong \overline{LZ}$

Prove:  $\triangle KVO \cong \triangle ZVL$

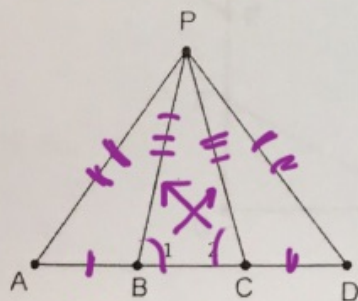


Statement	Reason
1.	Given
2.	ITT
3.	By <u>SAS</u> $\cong$



3. Given:  $\angle 1 \cong \angle 2$   
 $\overline{AB} \cong \overline{CD}$   
 $\overline{AP} \cong \overline{PD}$

Prove:  $\triangle ABP \cong \triangle DCP$



Statement	Reason
1.	Given
2. $\angle A \cong \angle D$	ITT
3. $\triangle ABP \cong \triangle DCP$ By SAS $\cong$	

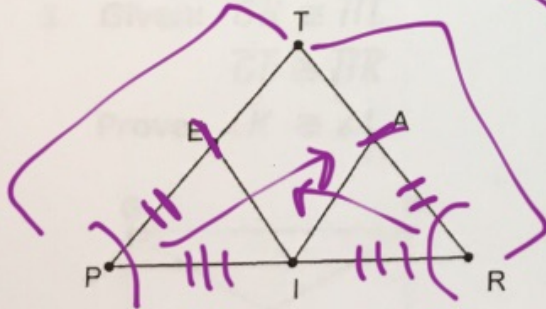
OR

Statement	Reason
1.	Given
2. $\overline{PB} \cong \overline{PC}$	ITT Converse
3.	By SSS $\cong$

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4. **Given:**  $\overline{PT} \cong \overline{TR}$   
 $\overline{EP} \cong \overline{AR}$   
*I is the midpoint of  $\overline{PR}$*   
**Prove:**  $\overline{EI} \cong \overline{AI}$



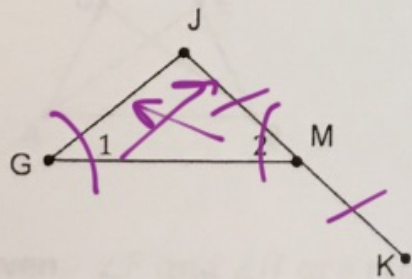
	Statement	Reason
1.		Given
2.	$\overline{PI} \cong \overline{RI}$	Def of midpoint
3.	$\angle P \cong \angle R$	ITT
4.	$\triangle EPI \cong \triangle ARI$	SAS $\cong$
5.		CPLTC



5. **Given:**  $M$  is the midpoint of  $\overline{JK}$

$\angle 1 \cong \angle 2$

**Prove:**  $\overline{JG} \cong \overline{MK}$



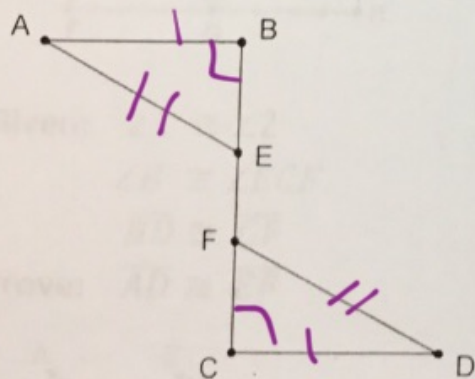
Statement	Reason
1. $\angle 1 \cong \angle 2$	Given
2. $\overline{JM} \cong \overline{JM}$	By Def of midpoint
3. $\overline{JG} \cong \overline{MK}$	ITT converse
4. $\overline{JG} \cong \overline{MK}$	Transitive property $\cong$

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6. Given:  $\overline{AB} \cong \overline{CD}$   
 $\overline{AB} \perp \overline{BC}$   
 $\overline{CD} \perp \overline{BC}$   
 $\overline{AE} \cong \overline{FD}$

Prove:  $\angle A \cong \angle D$



Statement	Reason
1.	GIVEN
	GIVEN
2. $\angle B$ and $\angle C$ are right	Def $\perp$ lines
3. $\triangle ABE$ and $\triangle DCF$ right	Def right $\triangle$ 's
4. $\triangle ABE \cong \triangle DCF$	By <u>HL</u> $\cong$
5. $\angle A \cong \angle D$	CPCCTC

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HW:

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