

Congruency

<b>Topic:</b> Corresponding Parts	<b>Things to Remember:</b> ✓ Triangle statement must have the SAME ORDER (follow congruent marks!)
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**Examples:**

<p>1. <math>\triangle DFE \cong</math> _____</p>	<p>2. <math>\triangle EFG \cong \triangle KML</math>, find <math>x</math> and <math>z</math>.</p>
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<p>3.</p> <p>a. <math>\angle G \cong</math> _____          b. <math>\overline{MK} \cong</math> _____          c. <math>\angle HFG \cong</math> _____          d. <math>\overline{HG} \cong</math> _____</p>	<p>4. <math>\triangle MON \cong \triangle YET</math></p> <p>a. <math>\angle N \cong</math> _____          b. <math>\overline{ET} \cong</math> _____          c. <math>\angle ONM \cong</math> _____          d. <math>\overline{NM} \cong</math> _____</p>
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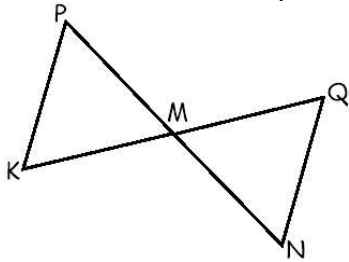
<b>Topic:</b> Triangle Congruency	<b>Things to Remember:</b> ✓ Triangles can be congruent 5 different ways: SSS, SAS, AAS, ASA, and HL
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**Examples:**

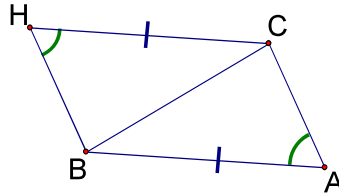
<p>5. <math>\triangle GHI \cong \triangle</math> _____ by _____</p>	<p>6. <math>\triangle ABD \cong \triangle</math> _____ by _____</p>
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7.  $\overline{PN}$  and  $\overline{KQ}$  bisect each other.

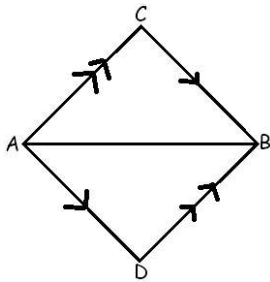
$\triangle PMK \cong \triangle$  \_\_\_\_\_ by \_\_\_\_\_



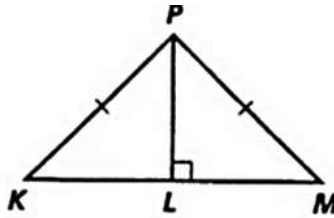
8. Are these triangles congruent? Why or why not?



9.  $\triangle CAB \cong \triangle$  \_\_\_\_\_ by \_\_\_\_\_

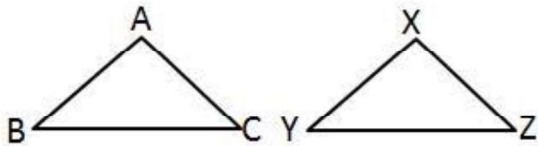


10.  $\triangle KLP \cong \triangle$  \_\_\_\_\_ by \_\_\_\_\_



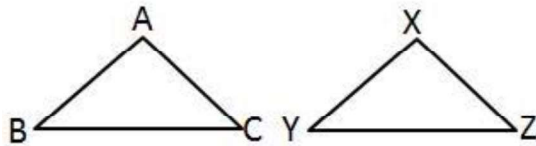
11. **Given:**  $\angle A \cong \angle X$  and  $\angle C \cong \angle Z$

What OTHER piece of information is needed to show  $\triangle ABC$  and  $\triangle XYZ$  by ASA?



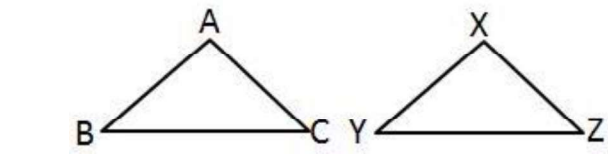
12. **Given:**  $BC \cong YZ$  and  $\angle C \cong \angle Z$

What OTHER piece of information is needed to show  $\triangle ABC$  and  $\triangle XYZ$  by AAS?



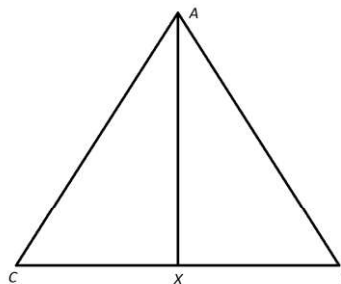
13. **Given:**  $\angle A \cong \angle X$  and  $BA \cong YX$

What OTHER piece of information is needed to show  $\triangle ABC$  and  $\triangle XYZ$  by SAS?



14. **Given:**  $\angle CXA$  and  $\angle BXA$  are right angles

What OTHER piece of information is needed to show  $\triangle CXA$  and  $\triangle BXA$  by HL?



**Topic:** Proofs

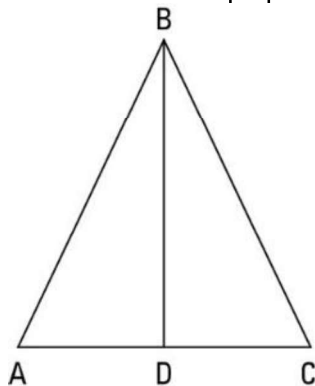
**Things to Remember:**

- ✓ State what is given FIRST
- ✓ MARK YOUR DIAGRAM!
- ✓ Step 1 – Write down the givens
- ✓ Step 2 – Make any marks that you know are congruent (reflexive property, vertical angles, alternate interior angles)
- ✓ Step 3 – **BUILD OFF YOUR GIVENS; YOU CANNOT ASSUME ANYTHING IF IT IS NOT TOLD TO YOU!!!**
- ✓ Step 4 – Statement will always be showing the Triangles are  $\cong$  (SSS, SAS, ASA, AAS, HL)
- ✓ Step 5 – AFTER two triangles are congruent, then you can use CPCTC

**Examples:**

SSS	SAS	ASA	AAS	HL	CPCTC	Vertical Angles are $\cong$
Reflexive Property					Alternate Interior Angles $\cong$	All Right Angles are $\cong$
Transitive Property					Definition of a Midpoint	Given
Definition of Bisector					Definition of Perpendicular	Definition of congruence

15. If BD and CA are perpendicular, what can you assume?

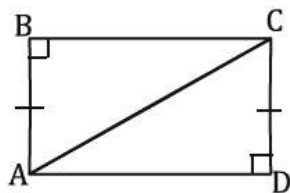


16. Using the figure on the left, if BD bisects AC, what can you assume?

17. Using the figure on the left, if BD bisects  $\angle ABC$ , what can you assume?

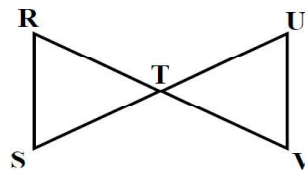
18. Given:  $\overline{AB} \cong \overline{DC}$ ,  $\overline{AB} \perp \overline{BC}$ , and  $\overline{CD} \perp \overline{AD}$

Prove:  $\triangle ABC \cong \triangle CDA$



19. Given:  $\overline{RV}$  and  $\overline{SU}$  bisect each other

Prove:  $\angle TSR \cong \angle TUV$



Statements	Reasons
1. $\overline{AB} \cong \overline{DC}$	1.
2. $\overline{AB} \perp \overline{BC}$	2.
3. $\overline{CD} \perp \overline{AD}$	3.
4.	4.
5. $\angle ABC \cong \angle CDA$	5.
6. $\overline{AC} \cong \overline{AC}$	6.
7. $\triangle ABC \cong \triangle CDA$	7.

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6. $\angle TSR \cong \angle TUV$	6.