

**UNIT #7: TRIANGLE CONGRUENCE**

Congruent Polygons  
SSS  
SAS

AAS  
HL  
ASA

Congruence  
Statement

Corresponding Parts  
CPCTC

*Dates, assignments, and quizzes subject to change without advance notice*

Monday	Tuesday	Block Day	Friday
		7/8 CONGRUENT POLYGONS SSS AND SAS	9 ASA, AAS, and HL
12 Proofs	13 QUIZ CPCTC	14/15 REVIEW TEST – (PROOFS)	16 TEST

**Wednesday, 11/7/12 or Thursday, 11/8/12**

4-3 and 4-4: Congruent Triangles, SSS and SAS

- I can use the properties of equilateral triangles to find missing side lengths and angles.
- I can write a congruency statement representing two congruent polygons.
- I can identify congruent parts of a polygon, given a congruency statement.
- I can prove triangles are congruent using SSS, ASA.

**PRACTICE:** pg. 234 #3-11, 19, 22-25, 31 (15 problems) Triangle Congruence Worksheet #1

**Friday, 11/9/12**

4-5: ASA, AAS, and HL

- I can prove triangles are congruent using ASA, AAS, and HL
- I can mark pieces of a triangle congruent given how they are to be proved congruent.

**PRACTICE:** Triangle Congruence Worksheet #2

**Monday, 11/12/12**

Triangle Congruence Proofs

- I can write a two-column proof to show that two triangles are congruent.

**PRACTICE:** Triangle Proofs Worksheet Part 1

**Tuesday, 11/13/12**

4-6: Triangle Proofs with CPCTC

→ QUIZ

- I can write a two-column proof to show that two triangles are congruent.

**PRACTICE:** Triangle Proofs Worksheet Part 2

**Wednesday, 11/14/12 or Thursday, 11/15/12**

Review

→ Test: Triangle Properties (Proofs)

- I can assess my knowledge and prepare for the test.

**PRACTICE:** Review Worksheet

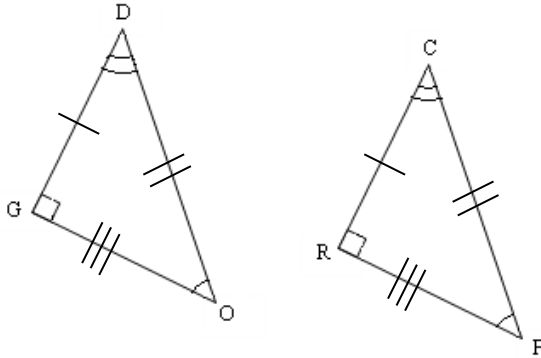
**Friday, 11/16/12**

→ Test: Triangle Properties

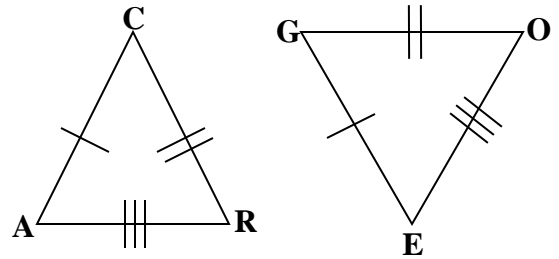
**Triangle Congruence**

I. Name the congruent triangles.

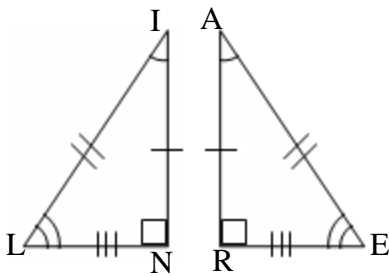
1.  $\triangle OGD \cong \triangle$  \_\_\_\_\_



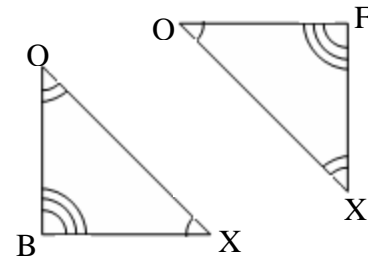
2.  $\triangle RAC \cong \triangle$  \_\_\_\_\_



3.  $\triangle LIN \cong \triangle$  \_\_\_\_\_

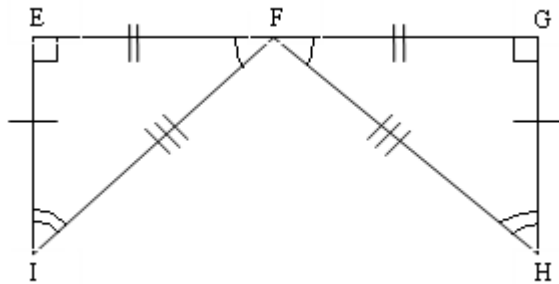


4.  $\triangle FOX \cong \triangle$  \_\_\_\_\_



II. Name the congruent triangle and the congruent parts..

7.



$\triangle FGH \cong \triangle$  \_\_\_\_\_

$\triangle EFI \cong \triangle$  \_\_\_\_\_

$\overline{FG} \cong$  \_\_\_\_\_

$\angle G \cong \angle$  \_\_\_\_\_

$\overline{GH} \cong$  \_\_\_\_\_

$\angle H \cong \angle$  \_\_\_\_\_

$\overline{FH} \cong$  \_\_\_\_\_

Use the congruency statement to fill in the corresponding congruent parts.

8.  $\triangle EFI \cong \triangle HGI$

$\angle E \cong \angle$  \_\_\_\_\_

$\overline{FE} \cong$  \_\_\_\_\_

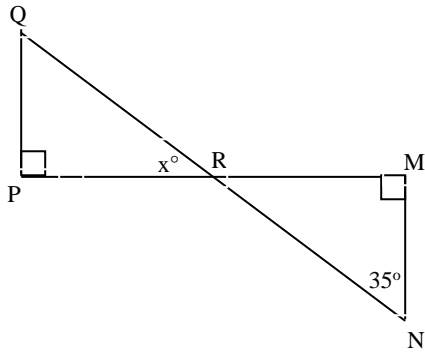
$\triangle EFI \cong \triangle$  \_\_\_\_\_

$\overline{FI} \cong$  \_\_\_\_\_

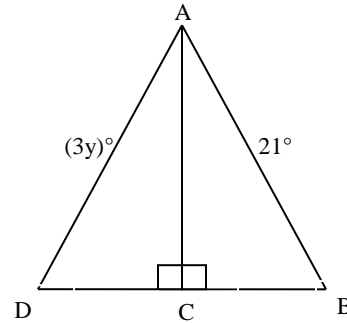
$\triangle FIE \cong \triangle$  \_\_\_\_\_

$\overline{IE} \cong$  \_\_\_\_\_

9.  $\triangle PQR \cong \triangle MNR$ . Find  $x$ .



10.  $\triangle ABC \cong \triangle ADC$ . Find  $y$ .



Third Angles Theorem (add to Theorems, Postulates and Definitions Card) –

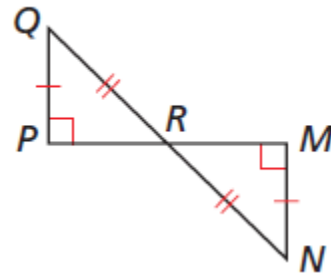
### Proving Triangles Congruent

Given:  $\angle P$  and  $\angle M$  are right angles.

$R$  is the midpoint of  $\overline{PM}$ .

$\overline{PQ} \cong \overline{MN}$ ,  $\overline{QR} \cong \overline{NR}$

Prove:  $\triangle PQR \cong \triangle MNR$

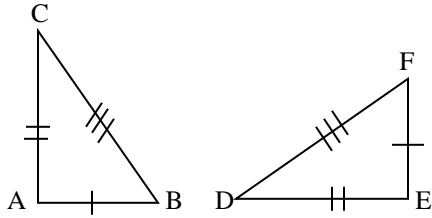



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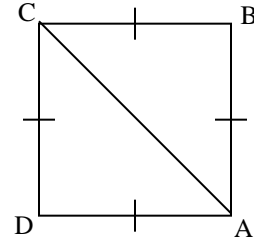
**Triangle Congruence Worksheet #1**

For each pair of triangles, tell which postulates, **if any**, make the triangles congruent.

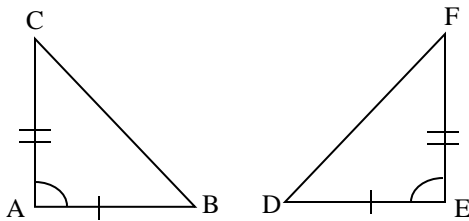
12.  $\triangle ABC \cong \triangle EFD$  \_\_\_\_\_



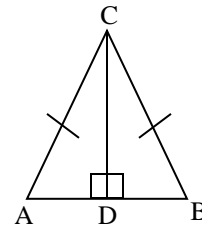
13.  $\triangle ABC \cong \triangle CDA$  \_\_\_\_\_



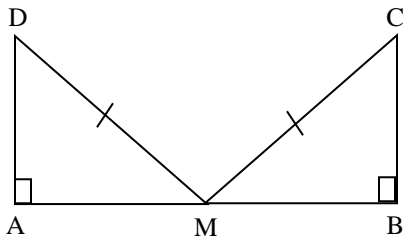
14.  $\triangle ABC \cong \triangle EFD$  \_\_\_\_\_



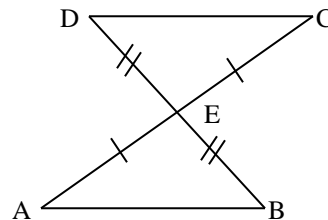
15.  $\triangle ADC \cong \triangle BDC$  \_\_\_\_\_



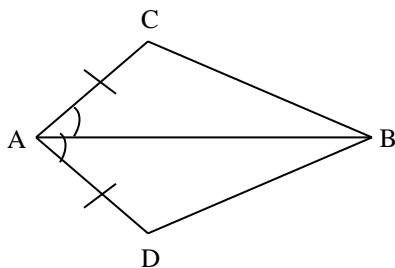
21.  $\triangle MAD \cong \triangle MBC$  \_\_\_\_\_



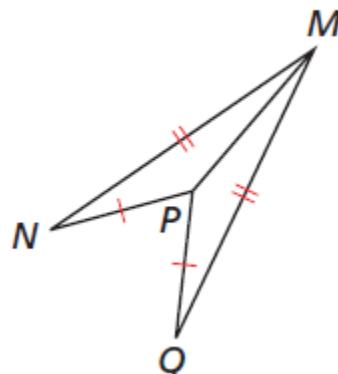
$\triangle ABE \cong \triangle CDE$  \_\_\_\_\_



22.  $\triangle ACB \cong \triangle ADB$  \_\_\_\_\_



23.  $\triangle MNP \cong \triangle MQP$  \_\_\_\_\_



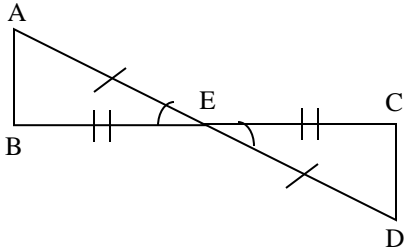
23. \_\_\_\_\_



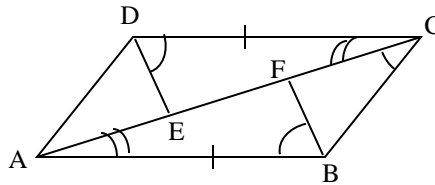
**Triangle Congruence Worksheet #2**

I. For each pair of triangles, tell which postulate, if any, can be used to prove the triangles congruent.

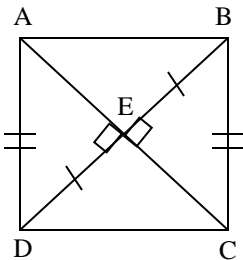
1.  $\triangle AEB \cong \triangle DEC$  \_\_\_\_\_



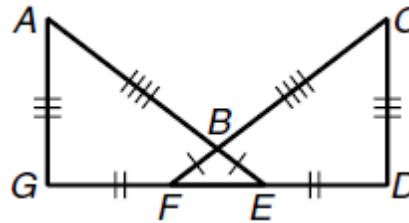
2.  $\triangle CDE \cong \triangle ABF$  \_\_\_\_\_



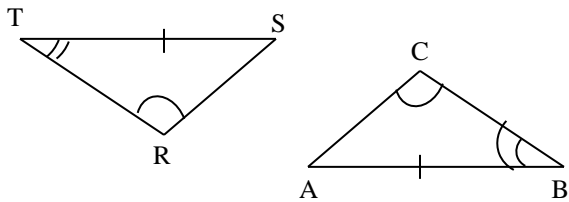
3.  $\triangle DEA \cong \triangle BEC$  \_\_\_\_\_



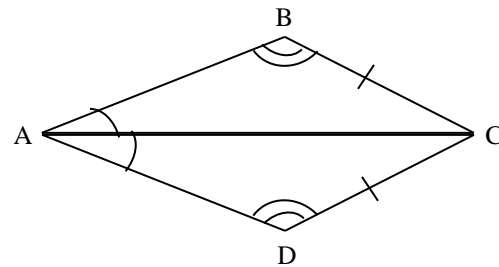
4.  $\triangle AGE \cong \triangle CDF$  \_\_\_\_\_



5.  $\triangle RTS \cong \triangle CBA$  \_\_\_\_\_

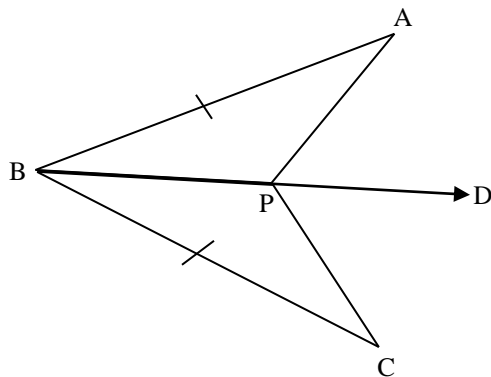


6.  $\triangle ABC \cong \triangle ADC$  \_\_\_\_\_

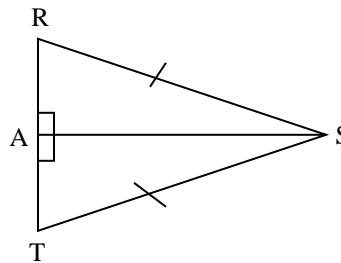


7.  $\triangle BAP \cong \triangle BCP$  \_\_\_\_\_

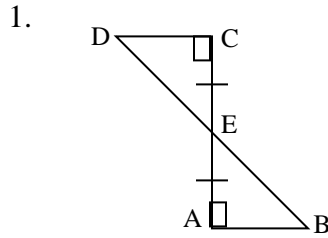
Given:  $\overrightarrow{BD}$  bisects  $\angle ABC$



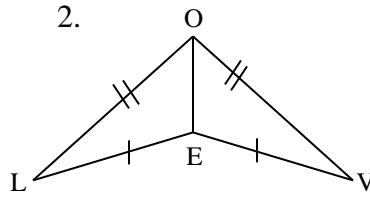
8.  $\triangle SAT \cong \triangle SAR$  \_\_\_\_\_



II. For each pair of triangles, tell: (a) Are they congruent (b) Write the triangle congruency statement. (c) Give the postulate that makes them congruent.

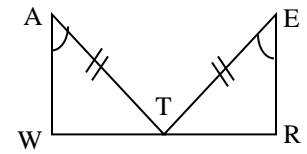


a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_  
 c. \_\_\_\_\_

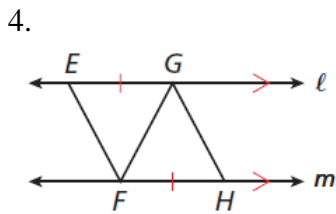


a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_  
 c. \_\_\_\_\_

3. Given: T is the midpoint of  $\overline{WR}$

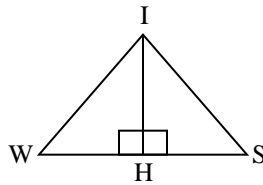


a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_  
 c. \_\_\_\_\_

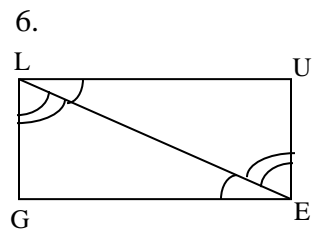


a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_  
 c. \_\_\_\_\_

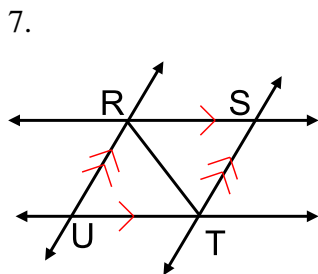
5. Given:  $\overrightarrow{IH}$  Bisects  $\angle WIS$



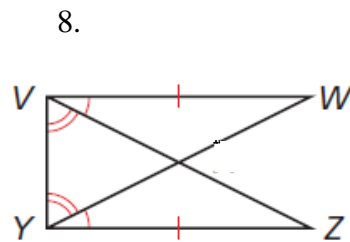
a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_  
 c. \_\_\_\_\_



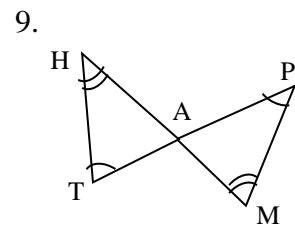
a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_  
 c. \_\_\_\_\_



a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_



a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_



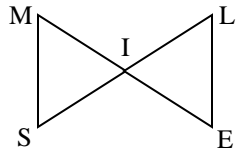
a. \_\_\_\_\_  
 b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_

c. \_\_\_\_\_

c. \_\_\_\_\_

c. \_\_\_\_\_

10. Given: I is the midpoint of  $\overline{ME}$  and  $\overline{SL}$

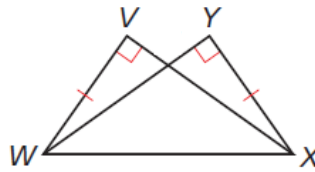


a. \_\_\_\_\_

b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_

c. \_\_\_\_\_

11.

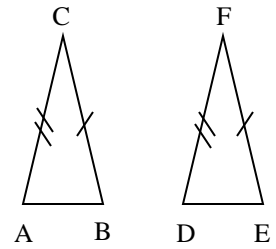


a. \_\_\_\_\_

b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_

c. \_\_\_\_\_

12.



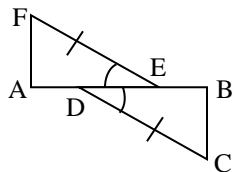
a. \_\_\_\_\_

b.  $\Delta$  \_\_\_\_\_  $\cong$   $\Delta$  \_\_\_\_\_

c. \_\_\_\_\_

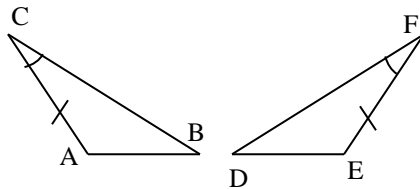
III. Using the given postulate, tell which parts of the pair of triangles should be shown congruent.

1. SAS



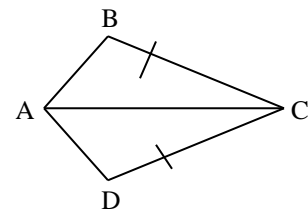
\_\_\_\_\_  $\cong$  \_\_\_\_\_

2. ASA



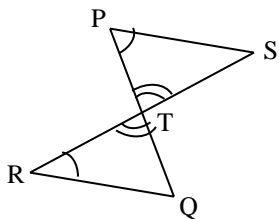
\_\_\_\_\_  $\cong$  \_\_\_\_\_

3. SSS



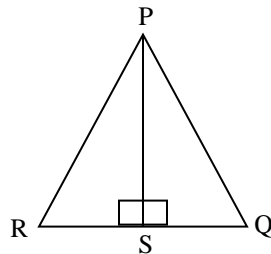
\_\_\_\_\_  $\cong$  \_\_\_\_\_

4. AAS



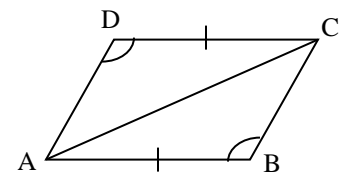
\_\_\_\_\_  $\cong$  \_\_\_\_\_

5. HL



\_\_\_\_\_  $\cong$  \_\_\_\_\_

6. ASA



\_\_\_\_\_  $\cong$  \_\_\_\_\_

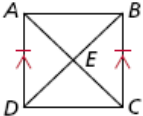
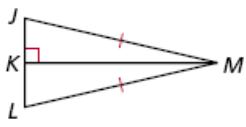
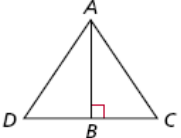
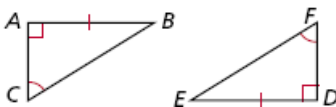
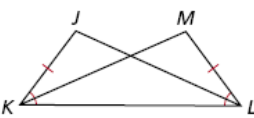
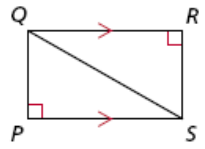




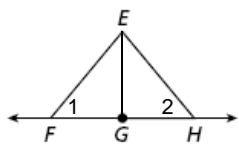
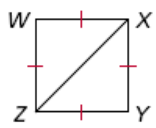
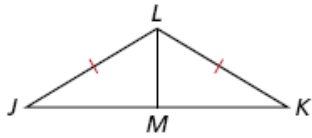
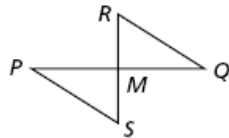
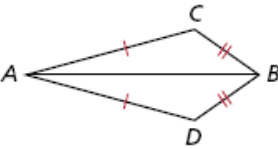
### Triangle Proofs Worksheet

For each problem below, write a two-column proof on a separate piece of paper.

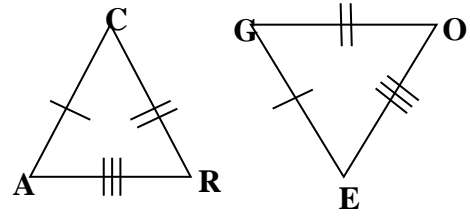
#### I. Proving Triangles Congruent:

<p><b>1.</b> Use AAS to prove the triangles congruent.                  Given: <math>\overline{AD} \parallel \overline{BC}</math>, <math>\overline{AD} \cong \overline{CB}</math>                  Prove: <math>\triangle AED \cong \triangle CEB</math></p>		<p><b>5.</b> Given: <math>B</math> is the midpoint of <math>\overline{DC}</math>. <math>\overline{AB} \perp \overline{DC}</math>                  Prove: <math>\triangle ABD \cong \triangle ABC</math></p>
<p><b>2.</b> Given: <math>\overline{KM} \perp \overline{JL}</math>, <math>\overline{JM} \cong \overline{LM}</math>, <math>\angle JMK \cong \angle LMK</math>                  Prove: <math>\triangle JKM \cong \triangle LKM</math></p>		
<p><b>3.</b> Given: <math>\overline{AB} \cong \overline{DE}</math>, <math>\angle C \cong \angle F</math>                  Prove: <math>\triangle ABC \cong \triangle DEF</math></p>		<p><b>6.</b> Use AAS to prove the triangles congruent.                  Given: <math>\angle R</math> and <math>\angle P</math> are right angles.  <math>\overline{QR} \parallel \overline{SP}</math>                  Prove: <math>\triangle QPS \cong \triangle SRQ</math></p>
<p><b>4.</b> Given: <math>\overline{JK} \cong \overline{ML}</math>, <math>\angle JKL \cong \angle MLK</math>                  Prove: <math>\triangle JKL \cong \triangle MLK</math></p>		

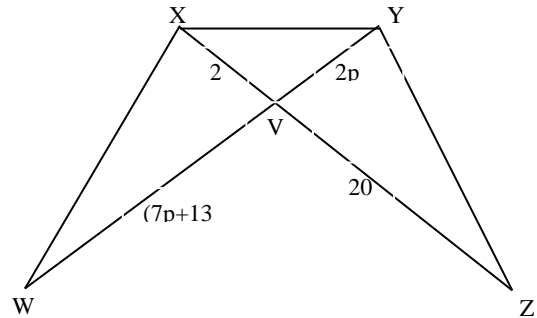
#### II. Using CPCTC

<p><b>7.</b> Given: <math>G</math> is the midpoint of <math>\overline{FH}</math>.  <math>\overline{EG} \cong \overline{EH}</math>                  Prove: <math>\angle 1 \cong \angle 2</math></p> 	<p><b>10.</b> Given: <math>\overline{WX} \cong \overline{XY} \cong \overline{YZ} \cong \overline{ZW}</math>                  Prove: <math>\angle W \cong \angle Y</math></p> 
<p><b>8.</b> Given: <math>\overline{LM}</math> bisects <math>\angle JLK</math>. <math>\overline{JL} \cong \overline{KL}</math>                  Prove: <math>M</math> is the midpoint of <math>\overline{JK}</math>.</p> 	<p><b>11.</b> Given: <math>M</math> is the midpoint of <math>\overline{PQ}</math> and <math>\overline{RS}</math>.                  Prove: <math>\overline{QR} \cong \overline{PS}</math></p> 
<p><b>9.</b> Given: <math>\overline{AC} \cong \overline{AD}</math>, <math>\overline{CB} \cong \overline{DB}</math>                  Prove: <math>\overline{AB}</math> bisects <math>\angle CAD</math>.</p> 	

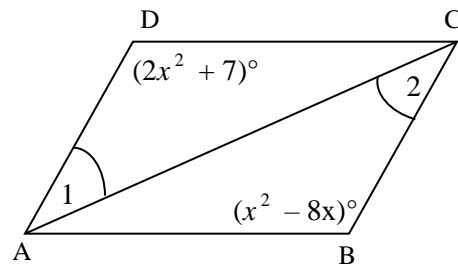
6. Write a congruency statement for the two triangles at right.



7.  $\triangle WXY \cong \triangle ZYX$ . Find  $p$ .

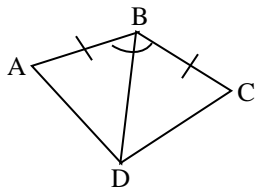


8.  $\triangle ADC \cong \triangle CBA$ . Find  $x$ .

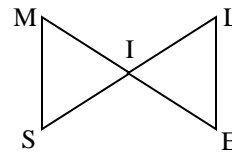


For each pair of triangles, tell: (a) Are they congruent (b) Write the triangle congruency statement. (c) Give the postulate that makes them congruent.

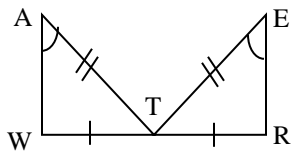
9.



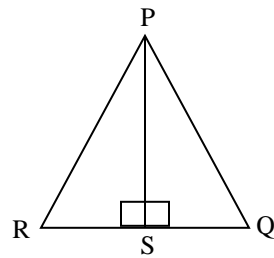
11. Given: I is the midpoint of  $\overline{ME}$  and  $\overline{SL}$



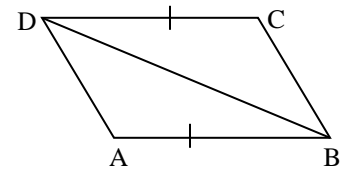
10.



12. What information is missing to use HL?

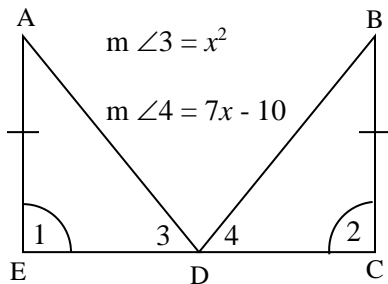


13. What information is missing to use SAS?

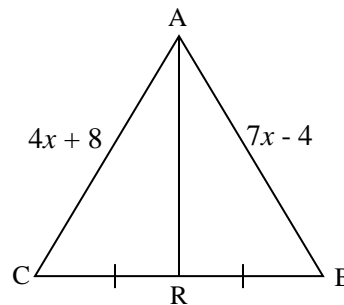


IV. For which value(s) of  $x$  are the triangles congruent?

14.  $x =$  \_\_\_\_\_



15.  $x =$  \_\_\_\_\_



16.  $x =$  \_\_\_\_\_

