

QUIZ DATE: _____

Math 2 – Honors

Unit 6 – Triangles & Congruence

Lesson 1 → Congruent Triangles & CPCTC

TEST DATE: _____

Name _____

Date _____ Pd _____

➤ **Review:** Similar triangles are the SAME SHAPE but DIFFERENT SIZES. In order for two triangles to be similar, the **corresponding angles** must be **congruent** and the **corresponding sides** must be **proportional**.

➤ **Congruent Triangles:** Triangles that are the same _____ and the same _____.
▪ Each triangle has three congruent _____ and three congruent _____.
▪ If all **SIX** of the corresponding parts of two triangles are _____, then the triangles are _____.

Congruent Triangles:

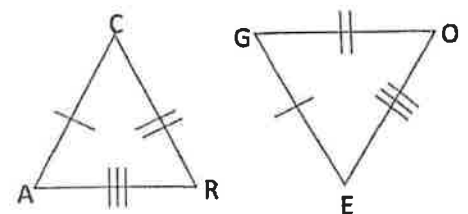
Corresponding Congruent Angles:

Corresponding Congruent Sides:

➤ **Definition of Congruent Triangles (CPCTC):**

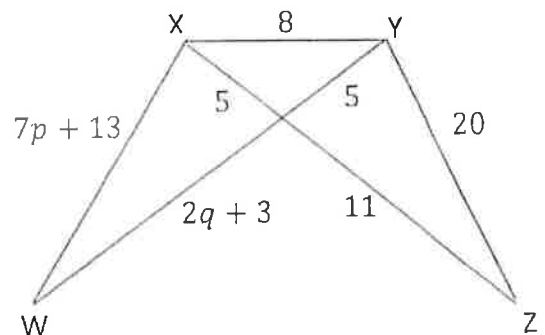
- Two triangles are congruent if and only if their corresponding parts are _____.
- **CPCTC** – Corresponding Parts of Congruent Triangles are Congruent

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

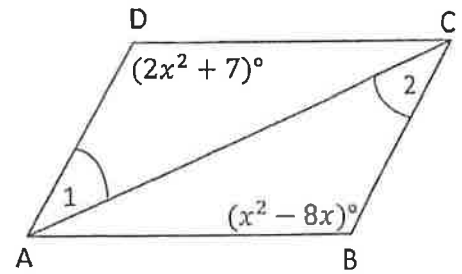


2. List ALL of the congruent parts if $\triangle EFG \cong \triangle HGF$.

3. $\triangle WXY \cong \triangle ZYX$ Solve for p and q .



4. $\triangle ADC \cong \triangle CBA$ Solve for x . Then find the $m\angle B$ & $m\angle D$.



➤ Draw and label a diagram. Solve for the missing variable(s).

5. If $\triangle BAT \cong \triangle DOG$, and $m\angle B = 14^\circ$, $m\angle G = 29^\circ$ and $m\angle O = (10x + 7)^\circ$, find x and $m\angle O$.

6. If $\triangle COW \cong \triangle PIG$, and $CO = 25$, $CW = 18$, $IG = 23$ and $PG = 7x - 17$, find x and PG .

7. If $\triangle DEF \cong \triangle PQR$ and $DE = 3x - 10$, $QR = 4x - 23$, $PQ = 2x + 7$ and $EF = y$, find x and y .

8. If $\triangle DEF \cong \triangle JKL$ and $DE = x^2 - 3x$, $KJ = 28$, $m\angle E = (8y^2 - 6y)^\circ$ and $m\angle K = 5^\circ$, find x and y .

Math 2 – Honors
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 Lesson 1 → Congruent Triangles & CPCTC HOMEWORK

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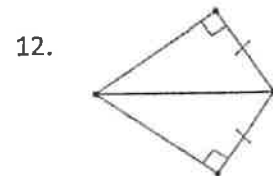
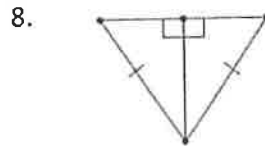
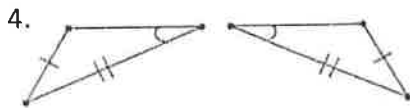
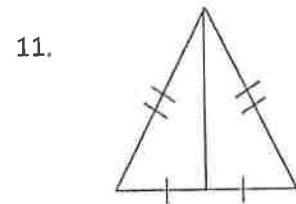
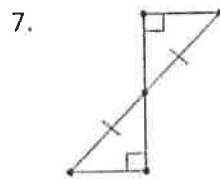
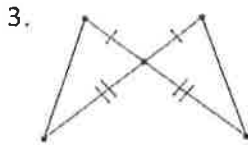
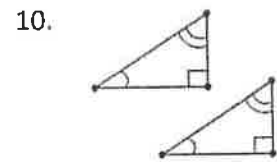
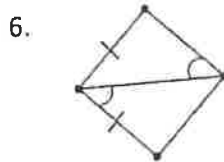
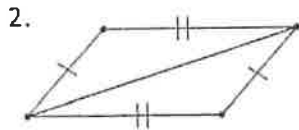
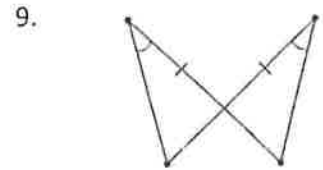
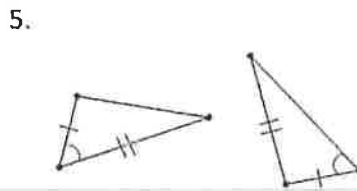
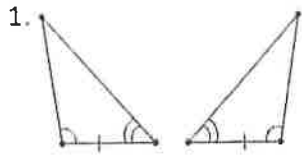
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➤ $\triangle PQR \cong \triangle ABC$

➤ Find the values of x and y

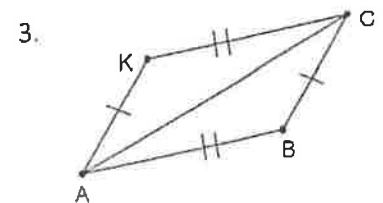
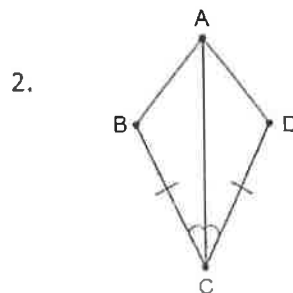
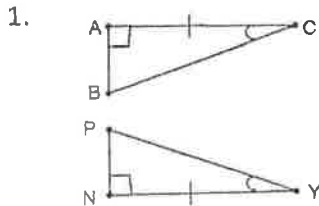
<p>Given:</p> <p>1. $m\angle R = (5x + 70)^\circ$ $QR = 4y + 2$ $m\angle C = (24x - 25)^\circ$ $BC = x + y$</p>	<p>Given:</p> <p>2. $m\angle R = (90 - y)^\circ$ $PR = 3x + y - 1$ $m\angle C = 13^\circ$ $AC = 32 - x$</p>
<p>Given:</p> <p>3. $PQ = 5x - 31$ $AB = x + 1$ $QR = -3y - 1$ $BC = 9 - y$</p>	<p>Given:</p> <p>4. $m\angle A = (15y - 3)^\circ$ $PQ = 11 - x$ $m\angle P = (43 - x)^\circ$ $AB = 3y + 1$</p>
<p>Given:</p> <p>5. $AB = 2x + y$ $PQ = 7$ $QR = 4x + y$ $BC = 11$</p>	<p>Given:</p> <p>6. $m\angle P = (x + 10)^\circ$ $m\angle Q = (3x)^\circ$ $m\angle A = (y + 20)^\circ$ $m\angle B = (x + 3y)^\circ$</p> <p>Find the $m\angle P$ and the $m\angle Q$.</p>

I. If the triangles can be proven congruent, give the reason (SSS, SAS, ASA, AAS or HL). If there is not enough information to prove the triangles congruent, write "none."



II. Determine whether you can conclude that another triangle is congruent to $\triangle ABC$.

- If so, complete the congruence statement and give the reason (SSS, SAS, ASA, AAS or HL).
- If not, write "none."

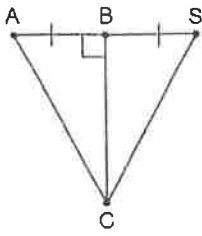


$\triangle ABC \cong \triangle$ _____
by _____

$\triangle ABC \cong \triangle$ _____
by _____

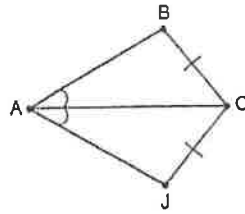
$\triangle ABC \cong \triangle$ _____
by _____

4.



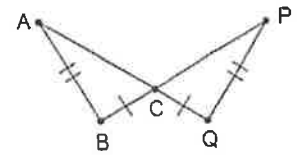
$\triangle ABC \cong \triangle$ _____
by _____

5.



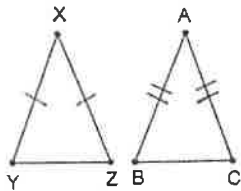
$\triangle ABC \cong \triangle$ _____
by _____

6.



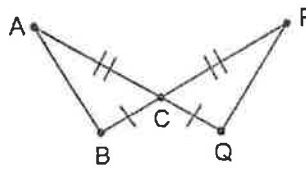
$\triangle ABC \cong \triangle$ _____
by _____

7.



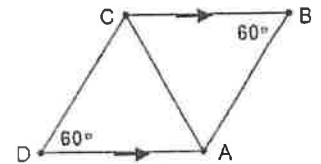
$\triangle ABC \cong \triangle$ _____
by _____

8.



$\triangle ABC \cong \triangle$ _____
by _____

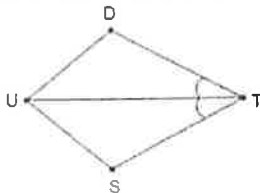
9.



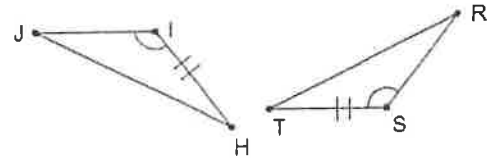
$\triangle ABC \cong \triangle$ _____
by _____

III. Mark any information that can be concluded from the diagram. Then write the additional information that is required in order to know that the triangles are congruent by the given reason.

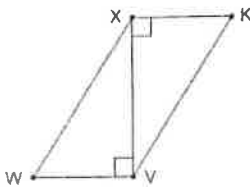
1. ASA



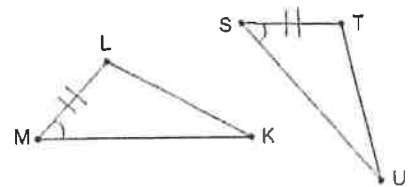
5. SAS



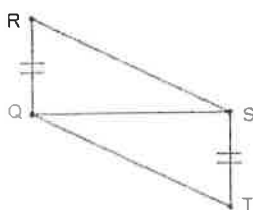
2. HL



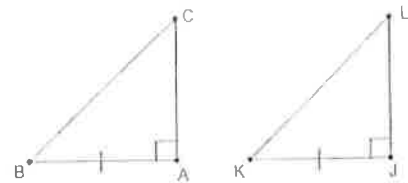
6. ASA



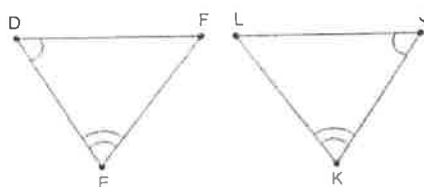
3. SSS



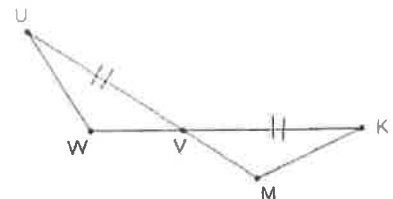
7. HL



4. ASA



8. SAS



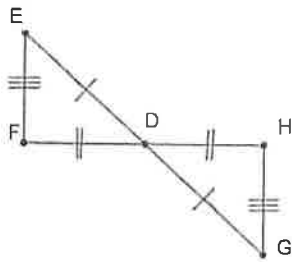
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Complete the congruence statement for each pair of congruent triangles. Then state the reason you are able to determine the triangles are congruent. If you cannot conclude that triangles are congruent, write "none".

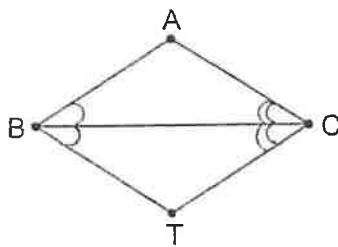
1. $\triangle EFD \cong \triangle$ _____

by _____



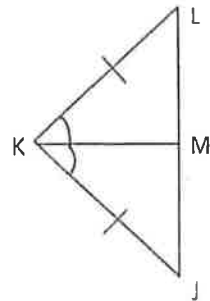
2. $\triangle ABC \cong \triangle$ _____

by _____



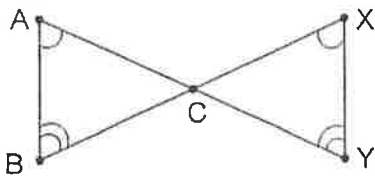
3. $\triangle LKM \cong \triangle$ _____

by _____



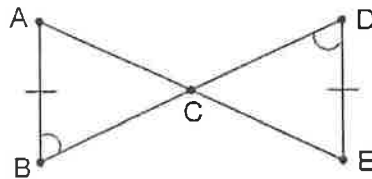
4. $\triangle ABC \cong \triangle$ _____

by _____



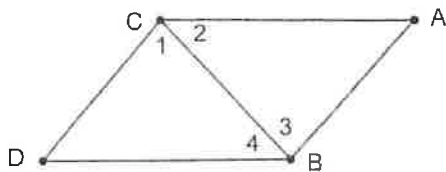
5. $\triangle ABC \cong \triangle$ _____

by _____



Use the given information to mark the diagram and any additional congruence you can determine from the diagram. Then complete the triangle congruence statement and give the reason for triangle congruence.

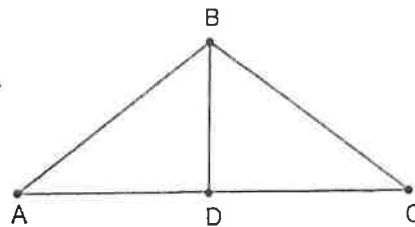
1.



Given: $\angle 1 \cong \angle 3$, $\angle 2 \cong \angle 4$

$\triangle ABC \cong \triangle$ _____ by _____

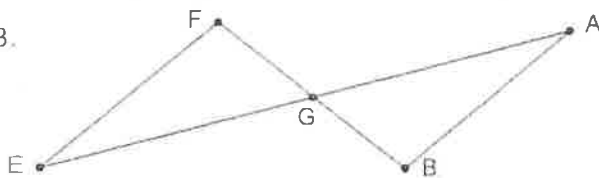
2.



Given: $\angle ABD \cong \angle CBD$, $\angle ADB \cong \angle CDB$

$\triangle ABD \cong \triangle$ _____ by _____

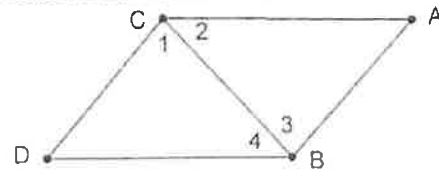
3.



Given: G is the midpoint of \overline{FB} and \overline{EA}

$\triangle ABG \cong \triangle$ _____ by _____

4.



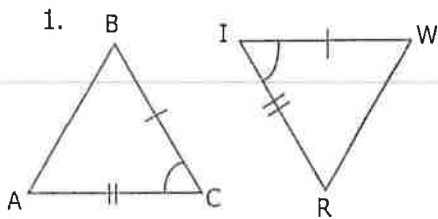
Given: $\angle 1 \cong \angle 3$, $\overline{CD} \cong \overline{AB}$

$\triangle ABC \cong \triangle$ _____ by _____

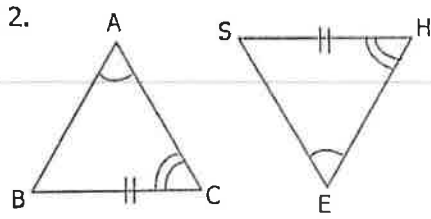
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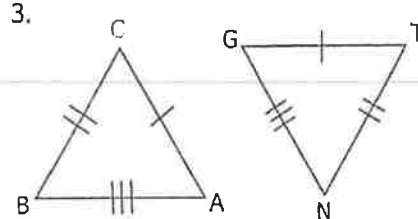
For each problem give the correct naming order of the congruent triangles. Write that name in order on the lines for the problem number (see box at bottom). Also, indicate which postulate or theorem is being used.



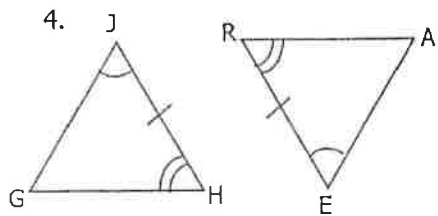
$\triangle ABC \cong \triangle$ _____ by _____



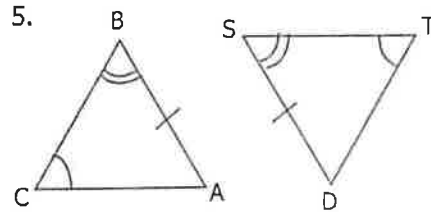
$\triangle ABC \cong \triangle$ _____ by _____



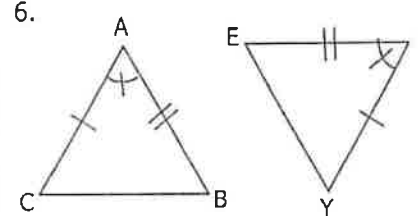
$\triangle ABC \cong \triangle$ _____ by _____



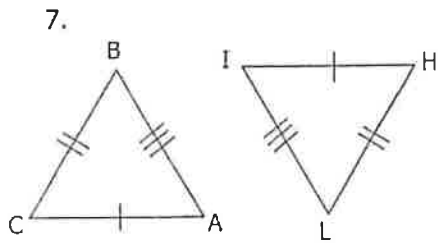
$\triangle GHJ \cong \triangle$ _____ by _____



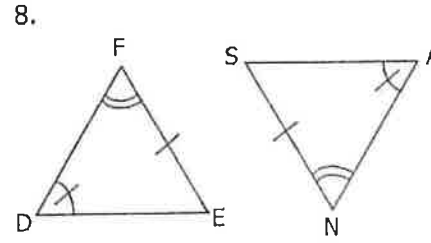
$\triangle ABC \cong \triangle$ _____ by _____



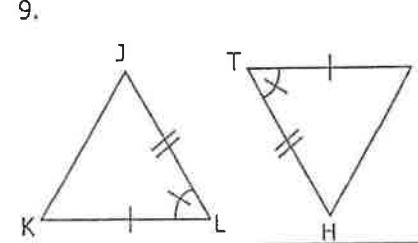
$\triangle ABC \cong \triangle$ _____ by _____



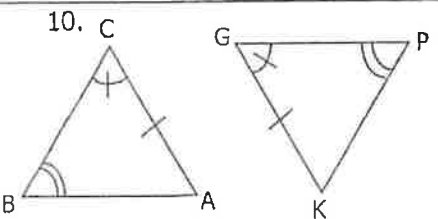
$\triangle ABC \cong \triangle$ _____ by _____



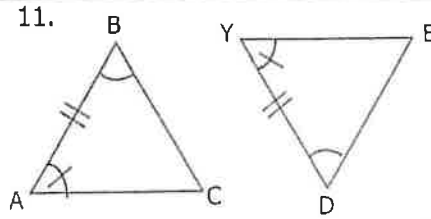
$\triangle DEF \cong \triangle$ _____ by _____



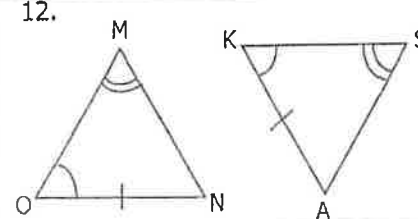
$\triangle JKL \cong \triangle$ _____ by _____



$\triangle ABC \cong \triangle$ _____ by _____



$\triangle ABC \cong \triangle$ _____ by _____



$\triangle MNO \cong \triangle$ _____ by _____

	O	N	S	E	I	T			
4	4	4	8	8	8	8	12	12	12
2	2	2	5	5	5	9	9	9	6
6	6	10	10	10	1	1	1	3	3
	E	E	O	N	U	T	E	I	
	6	6	10	10	1	1	1	3	3
	7	7	7	7	11	11	11	11	

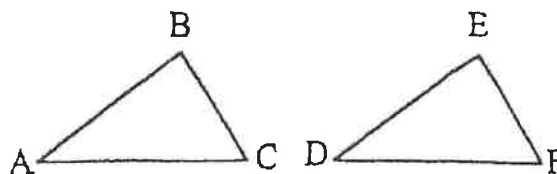
(When you are done with the puzzle, there are: 3 SAS, 5 AAS, 2 ASA, and 2 SSS instances.)

Part I: Mark the triangles based on the given information and what one can mark shown in the diagram. Then complete the statement.

1. Given: $\overline{AB} \cong \overline{DE}$, $\overline{AC} \cong \overline{DF}$,
 $\overline{BC} \cong \overline{EF}$.

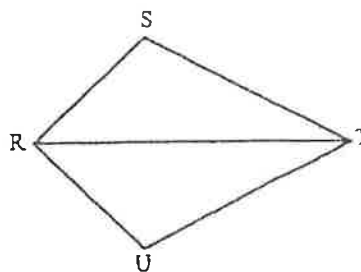
Complete the statement:

$\triangle ABC \cong \triangle$ _____ by _____.



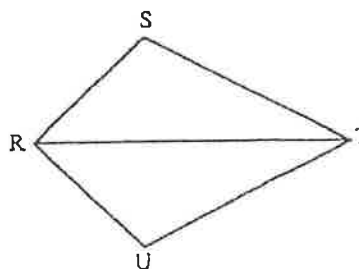
2. Given: \overline{RT} bisects $\angle SRU$,
 $\overline{RS} \cong \overline{RU}$.

$\triangle STR \cong \triangle$ _____ by _____.



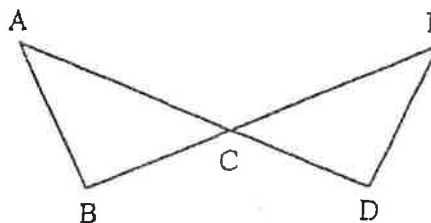
3. Given: \overline{RT} bisects $\angle SRU$ and
 \overline{RT} bisects $\angle STU$.

$\triangle RST \cong \triangle$ _____ by _____.



4. Given: $\overline{AC} \cong \overline{EC}$ and $\overline{BC} \cong \overline{DC}$

$\triangle ABC \cong \triangle$ _____ by _____.



5. Given: $\overline{WX} \parallel \overline{YZ}$ and $\overline{WX} \cong \overline{YZ}$

$\triangle XYW \cong \triangle$ _____ by _____.

