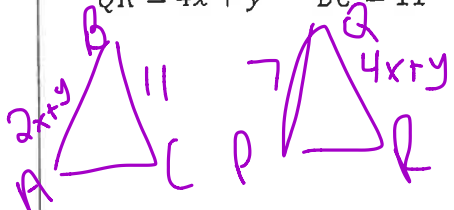
Math 2 – Honors
Unit 6 –Triangles & Congruence
Lesson 1 → Congruent Triangles & CPCTC HOMEWORK

Name_____
Date_____ Pd_____

HW

- $\boxed{\Delta PQR \cong \Delta ABC}$
- Find the values of x and y

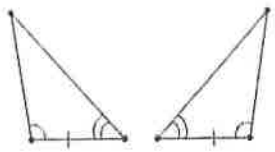
Given: 1. $m\angle R = (5x + 70)^\circ$ $QR = 4y + 2$ $m\angle C = (24x - 25)^\circ$ $BC = x + y$	Given: 2. $m\angle R = (90 - y)^\circ$ $PR = 3x + y - 1$ $m\angle C = 13^\circ$ $AC = 32 - x$
Given: 3. $PQ = 5x - 31$ $AB = x + 1$ $QR = -3y - 1$ $BC = 9 - y$	Given: 4. $m\angle A = (15y - 3)^\circ$ $PQ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

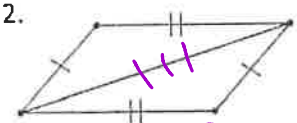


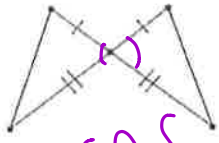
$2x+y=7$
$-(4x+y=11)$
$2x+y=7$
$-4x-y=-11$
$-2x=-4$
$x=2$

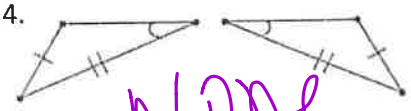
$2(2)+y=7$
$4+y=7$
$-4 \quad -4$
$y=3$

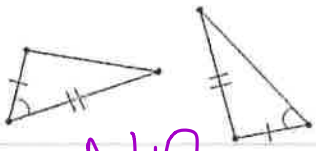
I. If the triangles can be proven congruent, give the reason (SSS, SAS, ASA, AAS or HL). If there is not enough information to prove the triangles congruent, write "none."

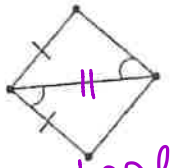
1. 
ASA

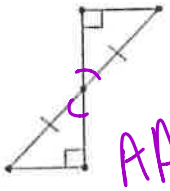
2. 
SSS

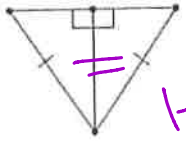
3. 
SAS

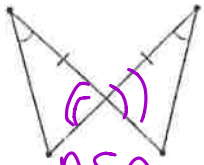
4. 
None

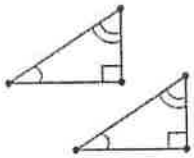
5. 
NO

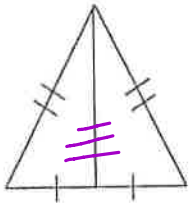
6. 
None

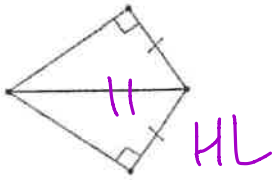
7. 
AAS

8. 
HL

9. 
ASA

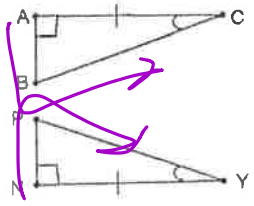
10. 
None

11. 
SSS

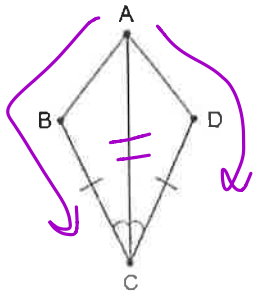
12. 
HL

II. Determine whether you can conclude that another triangle is congruent to ΔABC.

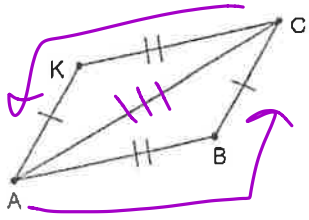
- If so, complete the congruence statement and give the reason (SSS, SAS, ASA, AAS or HL).
- If not, write "none."

1. 

ΔABC ≅ Δ NPY
by ASA

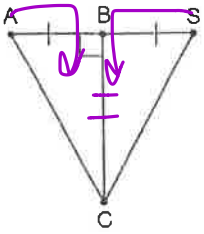
2. 

ΔABC ≅ Δ ADC
by SAS

3. 

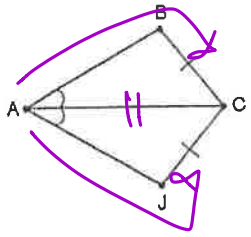
ΔABC ≅ Δ CKA
by SSS

4.



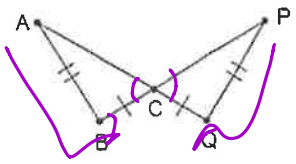
$\Delta ABC \cong \Delta$ SBC
by SAS

5.



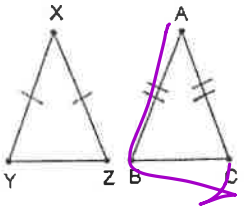
$\Delta ABC \cong \Delta$ AJC
by None

6.



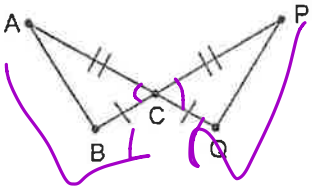
$\Delta ABC \cong \Delta$ PQC
by None

7.



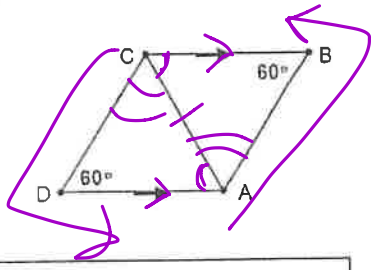
$\Delta ABC \cong \Delta$ _____
by None

8.



$\Delta ABC \cong \Delta$ PQC
by SAS

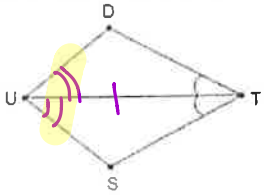
9.



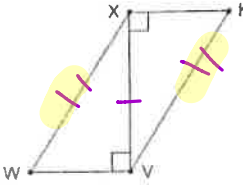
$\Delta ABC \cong \Delta$ CDA
by ASA

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

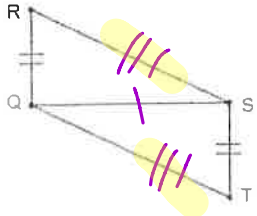


2. HL

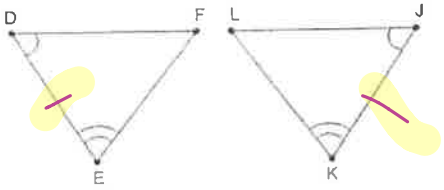


$\overline{XW} \cong \overline{KV}$

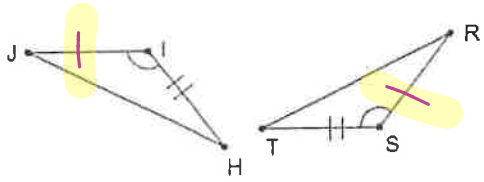
3. SSS



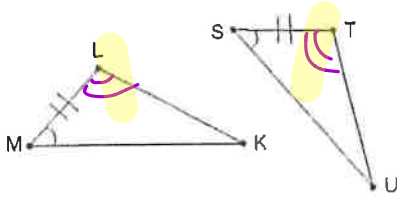
4. ASA



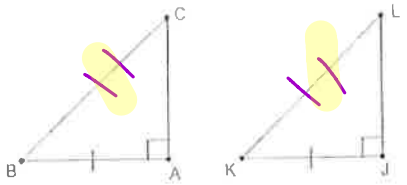
5. SAS



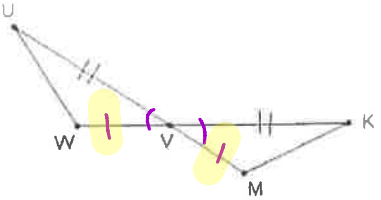
6. ASA



7. HL



8. SAS

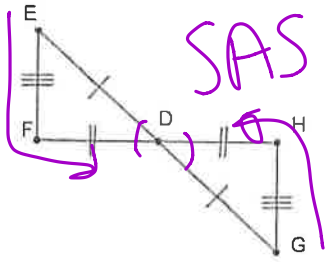


Math 2 – Honors
Unit 6 –Triangles & Congruence
Lesson 2 → Proving Triangles Congruent HOMEWORK

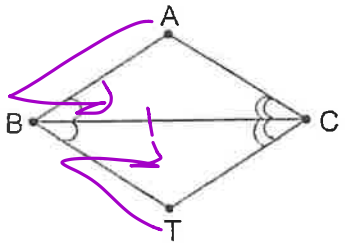
Name_____
Date_____ Pd_____

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 .

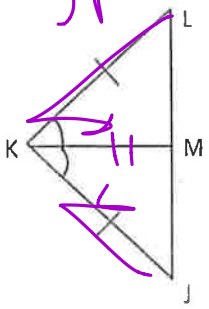
1. $\Delta EFD \cong \Delta$ GHD
by SSS SAS



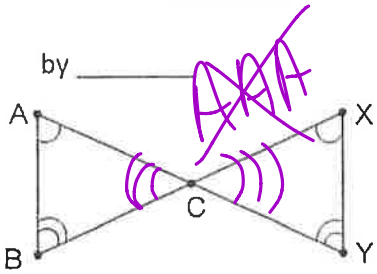
2. $\Delta ABC \cong \Delta$ TBC
by ASA



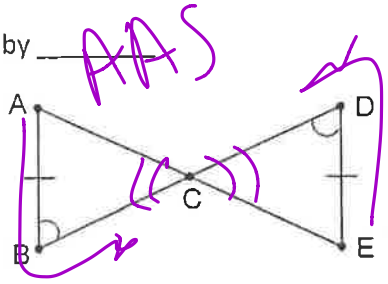
3. $\Delta LKM \cong \Delta$ JKM
by SAS



4. $\Delta ABC \cong \Delta$_____
by AAA

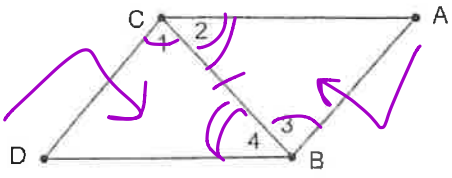


5. $\Delta ABC \cong \Delta$ EDC
by AAS



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.

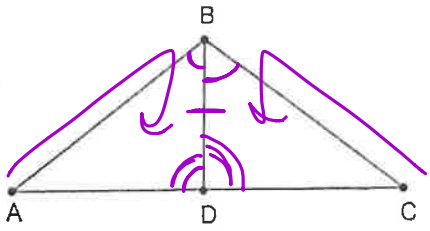
1.



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

$\Delta ABC \cong \Delta$ DCB by ASA

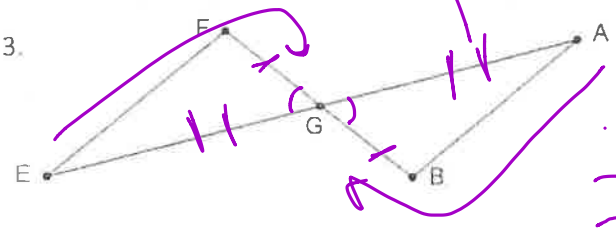
2.



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

$\Delta ABD \cong \Delta$ CBD by ASA

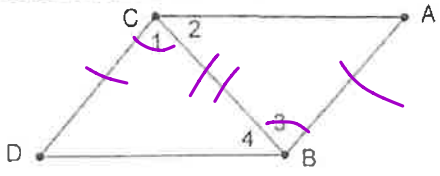
3.



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

$\Delta ABG \cong \Delta$ EFG by SAS

4.



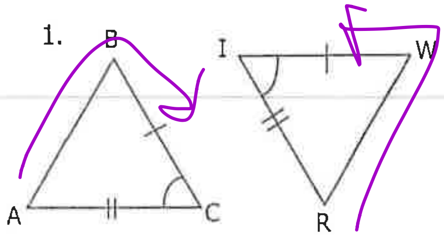
Given: $\angle 1 \cong \angle 3$, $\overline{CD} \cong \overline{AB}$

$\Delta ABC \cong \Delta$ DCB by SAS

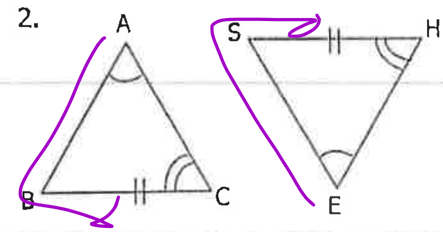
Math 2 – Honors
Unit 6 –Triangles & Congruence
Lesson 2 – Homework

Name______________________________
Date_______________________Pd_____

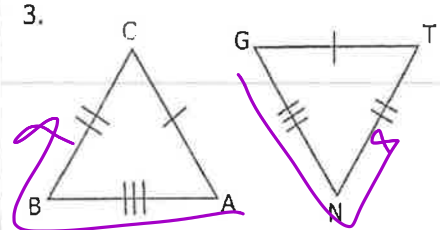
For each problem give the correct naming order of the congruent triangles. Write that name in order on the lines for the problem number (see box at bottom). Also, indicate which postulate or theorem is being used.

1.


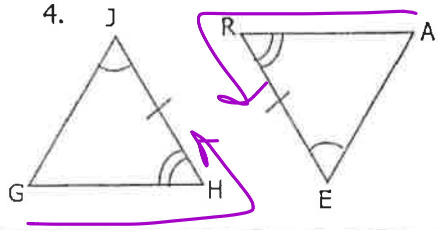
ΔABC ≅ Δ RWI by SAS

2.


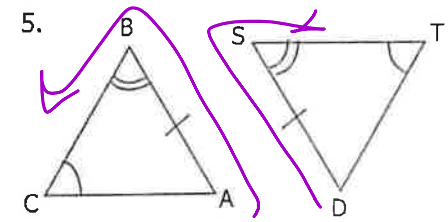
ΔABC ≅ Δ ESH by AAS

3.


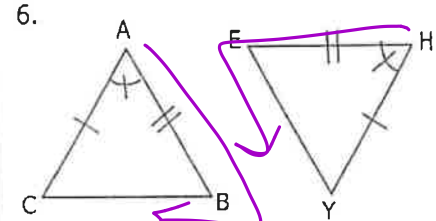
ΔABC ≅ Δ GNT by SSS

4.


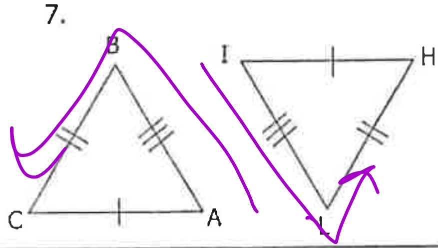
ΔGHJ ≅ Δ ARE by ASA

5.


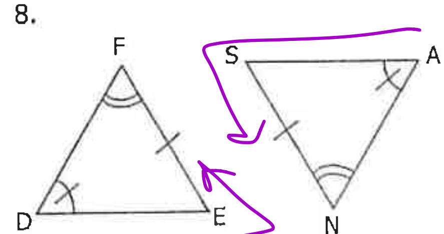
ΔABC ≅ Δ DST by AAS

6.


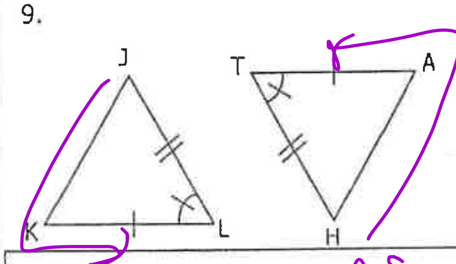
ΔABC ≅ Δ HEY by SAS

7.


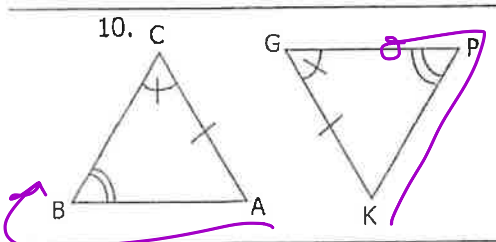
ΔABC ≅ Δ ILH by SSS

8.


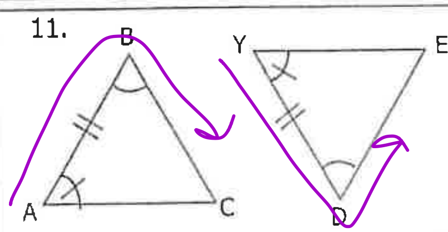
ΔDEF ≅ Δ ASN by AAS

9.


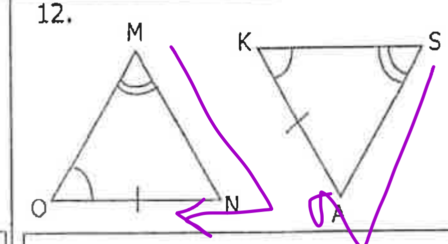
ΔJKL ≅ Δ HAT by SAS

10.


ΔABC ≅ Δ KPG by AAS

11.


ΔABC ≅ Δ YDE by ASA

12.


ΔMNO ≅ Δ SAK by AAS

___ ___ ___ ___ ___ O ___ ___ N ___ ___ ___ S ___ ___ E ___ I ___ ___ ___ ___ ___ T ___
4 4 4 8 8 8 12 12 12 2 2 2 5 5 5 9 9 9 6

___ ___ ___ E E ___ ___ ___ O ___ ___ N ___ U ___ ___ ___ ___ T ___ E ___ ___ I ___ .
6 6 10 10 10 1 1 1 3 3 3 7 7 7 11 11 11

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

10

Name _____

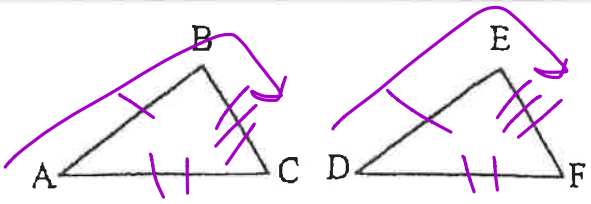
PRACTICE 1– Proofs Triangles - (G.6) – SSS, SAS, ASA, AAS, HL Date _____Period _____

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

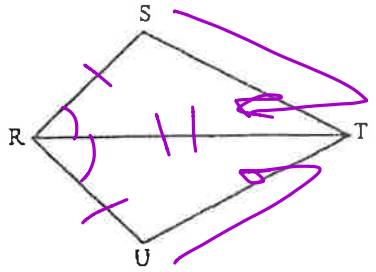
   Complete the statement:

   $\Delta ABC \cong \Delta$ DEF by SSS.



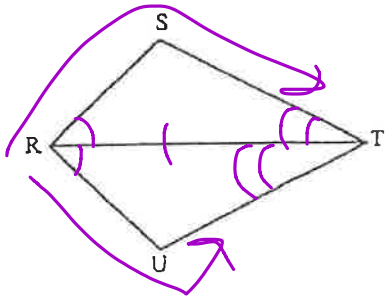
2. *Given:* $\overline{RT}$ *bisects* $< SRU$, $\overline{RS} \cong \overline{RU}$.

   $\Delta STR \cong \Delta$ UTR by SAS.



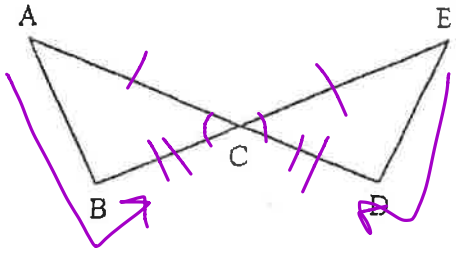
3. *Given:* $\overline{RT}$ *bisects* $< SRU$ *and* $\overline{RT}$ *bisects* $< STU$.

   $\Delta RST \cong \Delta$ RUT by ASA.



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

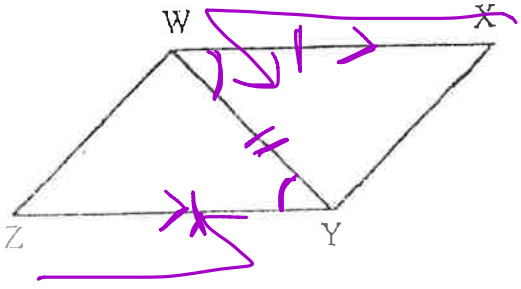
   $\Delta ABC \cong \Delta$ EDC by SAS.



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

   $\Delta XYW \cong \Delta$ ZWY by ASA

   SAS



11