Geometry   Name _____

Congruent Triangles Worksheet   Date _____ Per _____
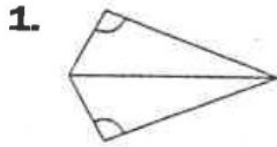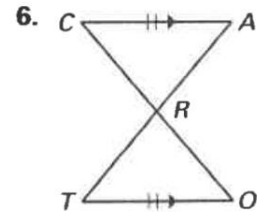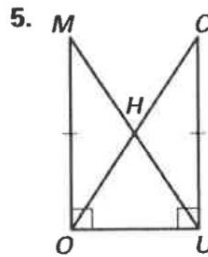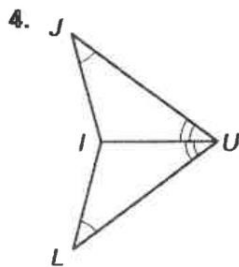
Tell which method(s) you can use to prove that the triangles are congruent. If no method can be used, write *none*.

1.   2.   3.
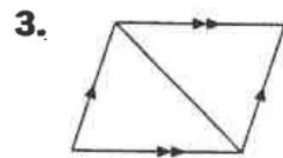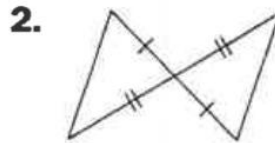
Is it possible to prove that the triangles are congruent? If so, state the postulate or theorem you would use. Explain your reasoning.

4. J   5. M   C   6. C   A
    I   U   H   R
    L   O   U   T   O

State the third congruence that must be given to prove that △DEF ≅ △MNO, using the indicated postulate or theorem.

1. Given: $\overline{EF} \cong \overline{NO}$
   $\angle N \cong \angle E$

   Method: ASA Congruence
   Postulate

2. Given: $\overline{EF} \cong \overline{NO}$
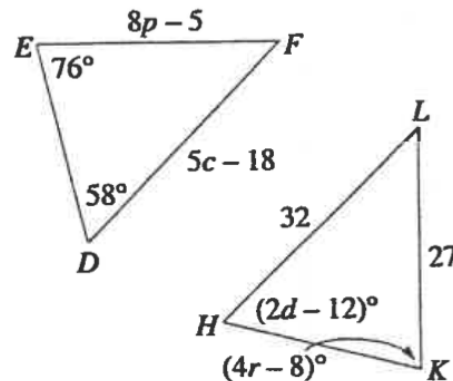 $\angle N \cong \angle E$

   Method: AAS Congruence
   Theorem

3. Given: $\angle D \cong \angle M$
   $\angle F \cong \angle O$

   Method: ASA
   Congruence
   Postulate

For Questions 8–11, use the figure at the right in which △DEF ≅ △HKL.

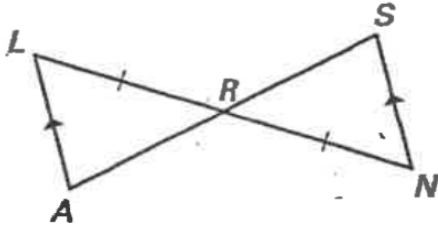8. Find the value of d.

9. Find the value of p.

10. Find the value of c.

11. Find the value of r.

E $8p - 5$ F
76°

D 58°

$5c - 18$

L

32   27

H $(2d - 12)°$

$(4r - 8)°$ K

Complete the proof by supplying the reasons.

8. Given: $\overline{LA} \parallel \overline{SN}$, $\overline{LR} \cong \overline{NR}$

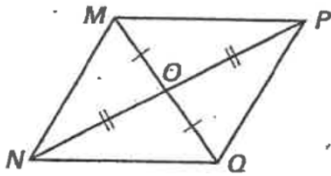   Prove: $\triangle LAR \cong \triangle NSR$

Statements	Reasons
1. $\overline{LA} \parallel \overline{SN}$	1. ?
2. $\angle L \cong \angle N$	2. ?
3. $\overline{LR} \cong \overline{NR}$	3. ?
4. $\angle LRA \cong \angle NRS$	4. ?
5. $\triangle LAR \cong \triangle NSR$	5. ?

11. Given: O is the midpoint of $\overline{MQ}$.
    O is the midpoint of $\overline{NP}$.

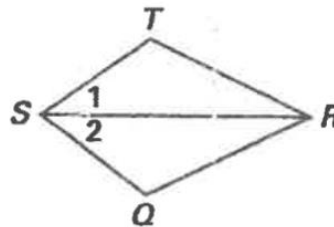   Prove: $\triangle MON \cong \triangle QOP$

Statements	Reasons
1. O is the midpoint of $\overline{MQ}$.	1. ?
2. ?	2. Definition of midpoint
3. ?	3. Given
4. ?	4. Definition of midpoint
5. $\angle MON \cong \angle QOP$	5. ?
6. $\triangle MON \cong \triangle QOP$	6. ?

7. Write a two-column proof.

   Given: $\overrightarrow{SR}$ bisects $\angle TSQ$,

   $\angle T \cong \angle Q$

   Prove: $\triangle RTS \cong \triangle RQS$

Statements	Reasons
1. _____	1. Given
2. _____	2. Given
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____