4.4 Proving Triangles Congruent – SSS, SAS

Determine which postulate can be used to prove that the triangles are congruent. If it is not possible to prove congruence, write *not possible*.
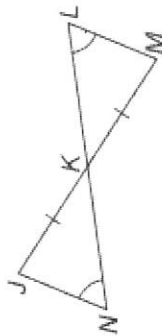
1.

2.

3.

4.

5.

6. Given $\angle A \cong \angle R$, what sides must you know to be congruent to prove $\triangle ABC \cong \triangle RST$ by SAS?

A $\overline{AB} \cong \overline{RS}$; $\overline{BC} \cong \overline{ST}$
C $\overline{BC} \cong \overline{ST}$; $\overline{AC} \cong \overline{RT}$
B $\overline{AB} \cong \overline{RS}$; $\overline{AC} \cong \overline{RT}$
D $\overline{CA} \cong \overline{TR}$; $\overline{BC} \cong \overline{ST}$

Proofs:

Given: $\angle N \cong \angle L$
$\overline{JK} \cong \overline{MK}$

Prove: $\triangle JKN \cong \triangle MKL$

Given: $\overline{RS} \cong \overline{TS}$
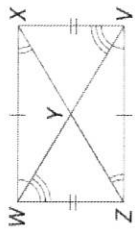V is the midpoint of $\overline{RT}$

Prove: $\triangle RSV \cong \triangle TSV$

4.5 – Proving Triangles Congruent – ASA, AAS, HL

**Refer to the figure.
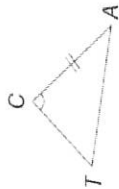Complete each congruence statement and the postulate or theorem that applies.**

1. $\triangle WXY \cong \triangle$ ___?___ by ___?___ .

2. $\triangle WYZ \cong \triangle$ ___?___ by ___?___ .

3. $\triangle VWZ \cong \triangle$ ___?___ by ___?___ .

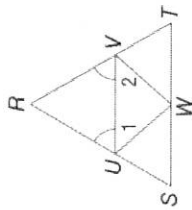4. What congruence statement is needed to use AAS to prove $\triangle CAT \cong \triangle DOG$?

A $\angle C \cong \angle D$
B $\angle A \cong \angle O$
C $\angle A \cong \angle G$
D $\angle T \cong \angle G$

4.6 Isosceles and Equilateral Triangles

Refer to the figure.

1. Name two congruent segments if $\angle 1 \cong \angle 2$.

2. Name two congruent angles if $\overline{RS} \cong \overline{RT}$.

3. Find $m\angle R$ if $m\angle RUV = 65$.

4. Find $m\angle C$ if $\triangle ABC$ is isosceles with $\overline{AB} \cong \overline{AC}$ and $m\angle A = 70$.

5. Find x if $\triangle LMN$ is equilateral with $LM = 2x - 4$, $MN = x + 6$, and $LN = 3x - 14$.

6. In the isosceles triangle BCD, $\angle C$ is the vertex angle. Which sides are congruent?