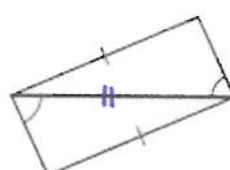
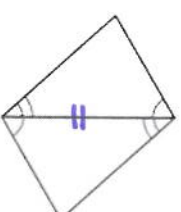
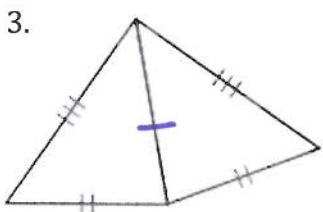


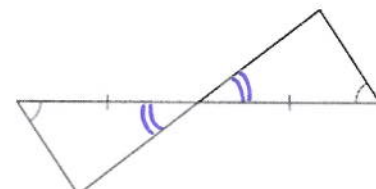
Activity 1: Congruent or not?

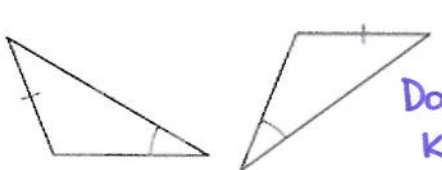
State if the following triangles are congruent. If they are, state how you know.

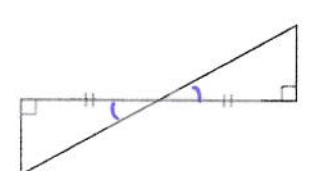
1.  Do not know
(SSA given)

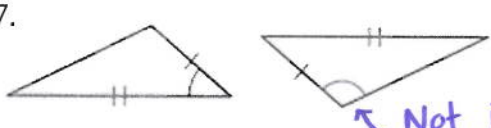
2.  Yes, ASA.

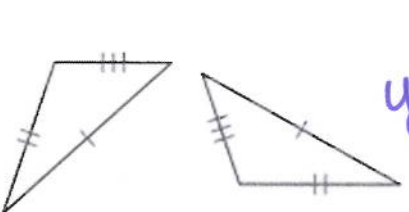
3.  Yes, SSS.

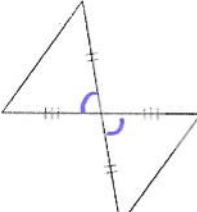
4.  Yes, ASA.

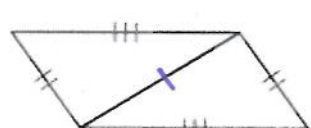
5.  Do not know.

6.  Yes, ASA.

7.  Not included!
Do not know.

8.  Yes, SSS.

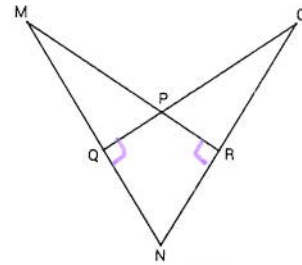
9.  Yes, SAS.

10.  Yes, SSS.

Activity 2: Congruence Proofs

Complete the following proofs that two triangles are congruent.

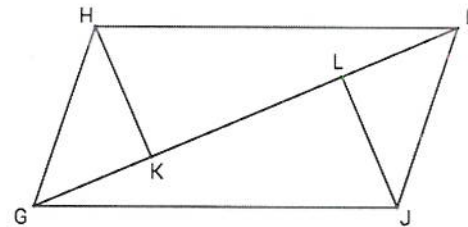
- a. **Given:** $\overline{MR} \perp \overline{ON}$, $\overline{OQ} \perp \overline{MN}$
 $\overline{MR} \cong \overline{OQ}$



Prove: $\triangle MRN \cong \triangle OQN$

Statements	Reasons
1. $\overline{MR} \cong \overline{OQ}$	1. Given
2. $\overline{MR} \perp \overline{ON}$, $\overline{OQ} \perp \overline{MN}$	2. Given
3. $m\angle MRN = m\angle OQN = 90^\circ$	3. Defn of perp. lines/rt. \angle 's
4. $\angle MNR \cong \angle ONQ$	4. Reflexive Property
5. $\triangle MRN \cong \triangle OQN$	5. AAS Theorem

- b. **Given:** $\overline{HK} \perp \overline{GI}$, $\overline{JL} \perp \overline{GI}$
 $\overline{GH} \cong \overline{JI}$, $\overline{GL} \cong \overline{KI}$



Prove: $\triangle GKH \cong \triangle ILJ$

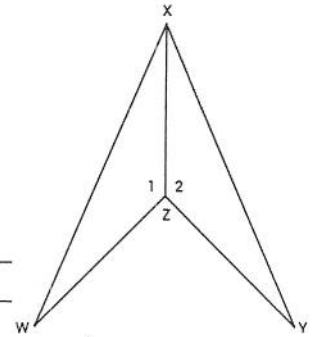
Statements	Reasons
1. $\overline{HK} \perp \overline{GI}$, $\overline{JL} \perp \overline{GI}$	1. Given
2. $\overline{GH} \cong \overline{JI}$, $\overline{GL} \cong \overline{KI}$	2. Given
3. $GH = JI$, $GL = KI$	3. Defn of congruent segments
4. $GL = GK + KL$	4. Segment Addition Postulate
5. $KI = KL + IL$	5. Segment Addition Postulate
6. $GK + KL = KL + IL$	6. Transitive Property
7. $GK = IL$	7. Subtraction Property
8. $\overline{GK} \cong \overline{IL}$	8. Defn of congruent segmts
9. $\triangle GKH \cong \triangle ILJ$	9. H-L Postulate

Activity 3: Using cpoctac

In the following proofs, you will use triangle congruence to prove that particular angles or segments are congruent.

- a. **Given:** $\angle 1 \cong \angle 2$
 $\overline{WZ} \cong \overline{YZ}$

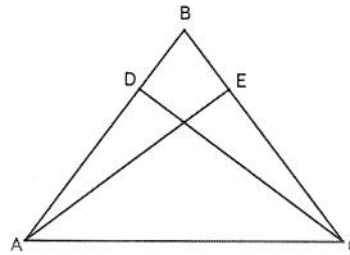
Prove: \overline{XZ} bisects $\angle WXY$



Statements	Reasons
1. $\angle 1 \cong \angle 2, \overline{WZ} \cong \overline{YZ}$	1. Given
2. $\overline{XZ} \cong \overline{XZ}$	2. Reflexive Property
3. $\triangle WXZ \cong \triangle YXZ$	3. SAS Postulate
4. $\angle WXZ \cong \angle YXZ$	4. cpoctac
5. \overline{XZ} bisects $\angle WXY$	5. Defn of an angle bisector

- b. **Given:** $\overline{CD} \perp \overline{AB}, \overline{AE} \perp \overline{BC}$
 $\overline{CD} \cong \overline{AE}$

Prove: $\triangle ABC$ is isosceles



Statements	Reasons
1. $\overline{CD} \cong \overline{AE}$	1. Given
2. $\overline{CD} \perp \overline{AB}, \overline{AE} \perp \overline{BC}$	2. Given
3. $m\angle ADC = m\angle CEA = 90^\circ$	3. Defn of perp. lines/rt. \angle 's
4. $\triangle ADC, \triangle CEA$ are rt \triangle 's	4. Definition of right triangles
5. $\overline{AC} \cong \overline{AC}$	5. Reflexive Property
6. $\triangle ADC \cong \triangle CEA$	6. H-L Postulate
7. $\angle DAC \cong \angle ECA$	7. cpoctac
8. $\triangle ABC$ is isosceles	8. Isosceles Base Angles Theorem