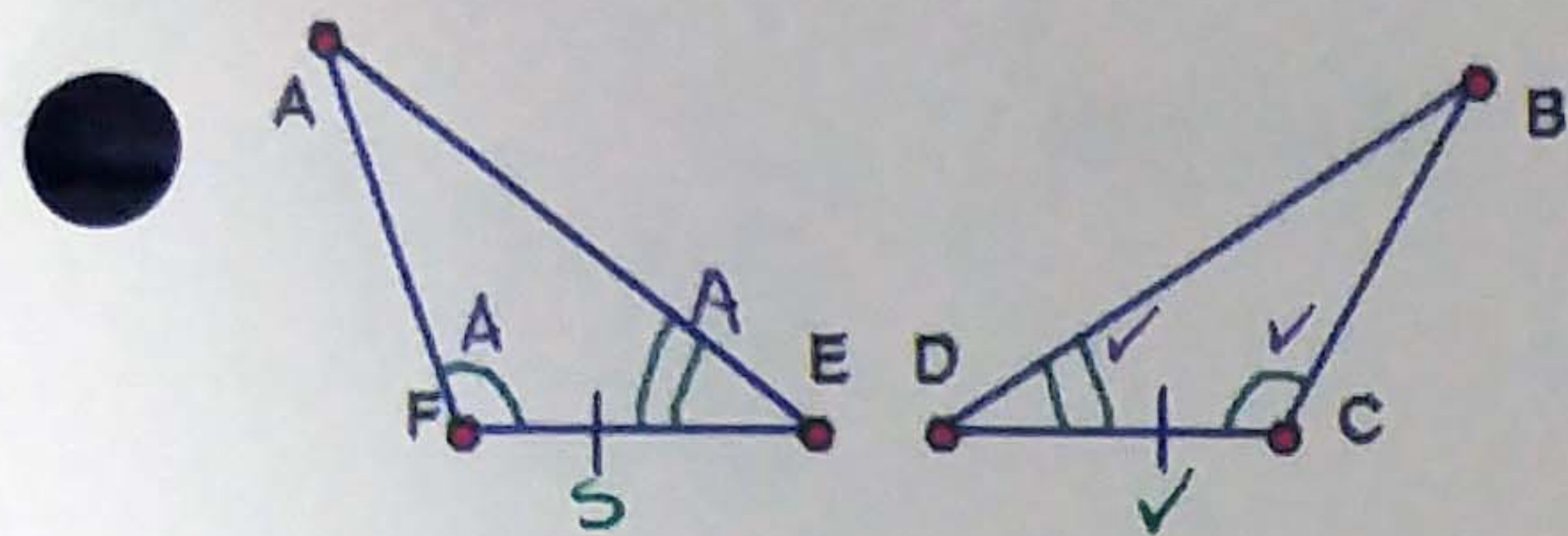


# Geometry 5.7 Notes: Using Congruent Triangles

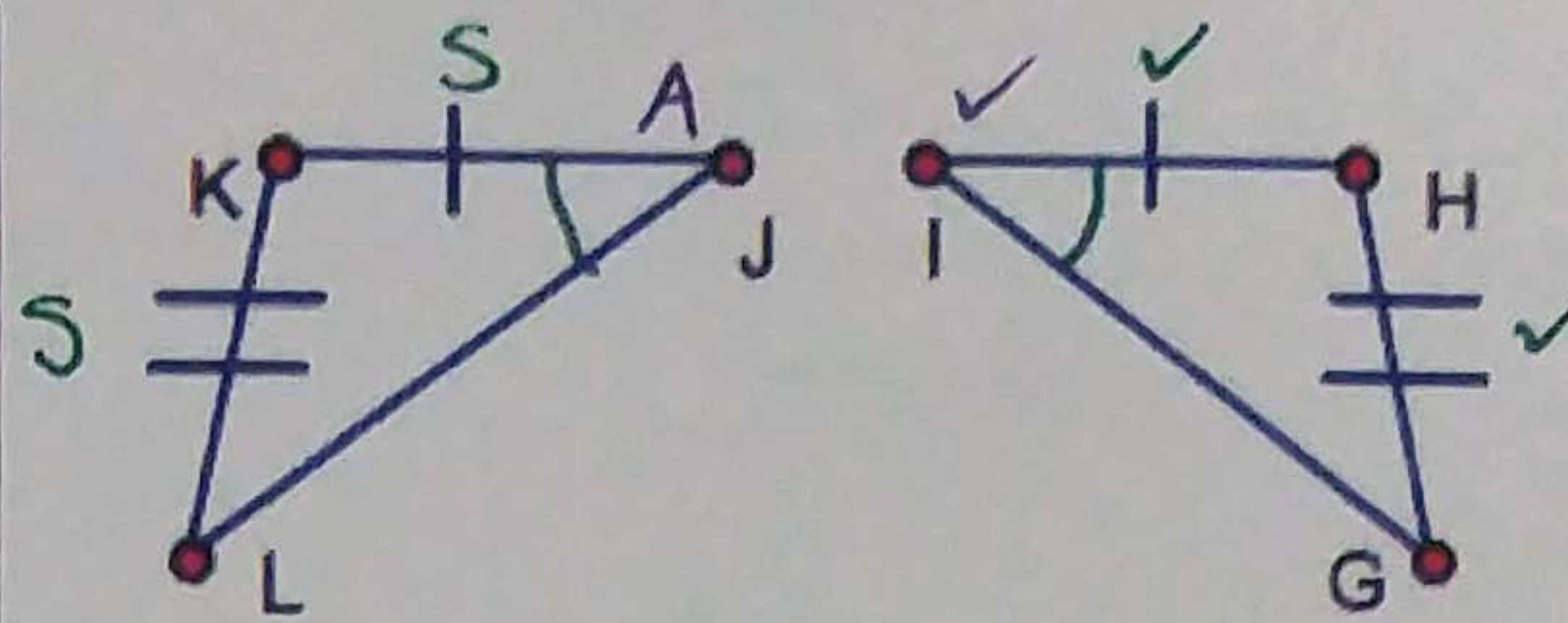
Warm-up:



1.  $\triangle FEA \cong \triangle CDB$

Circle:

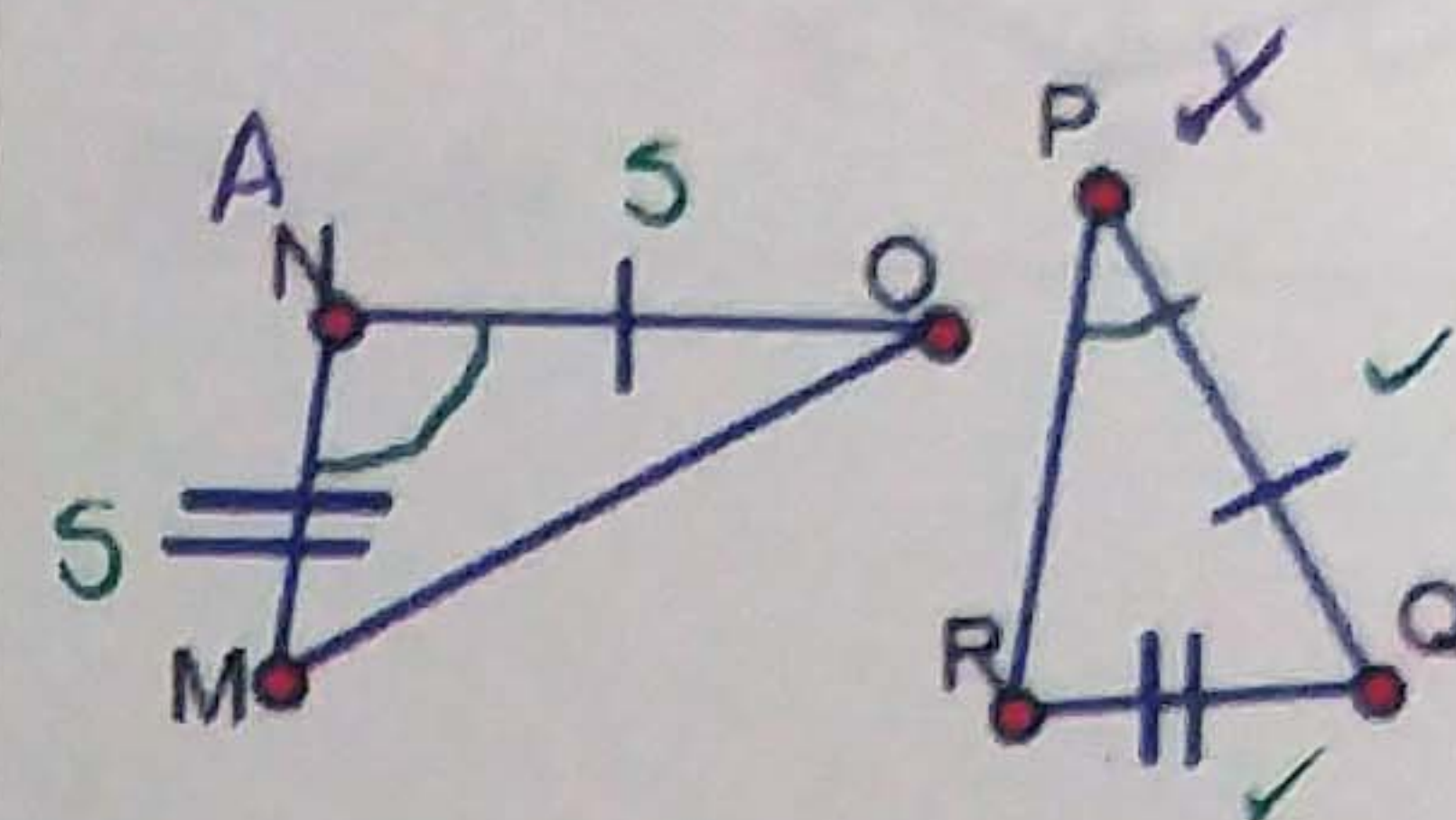
SAS ASA SSS  
AAS NOT CONGRUENT



2.  $\triangle \_ \cong \triangle \_$

Circle:

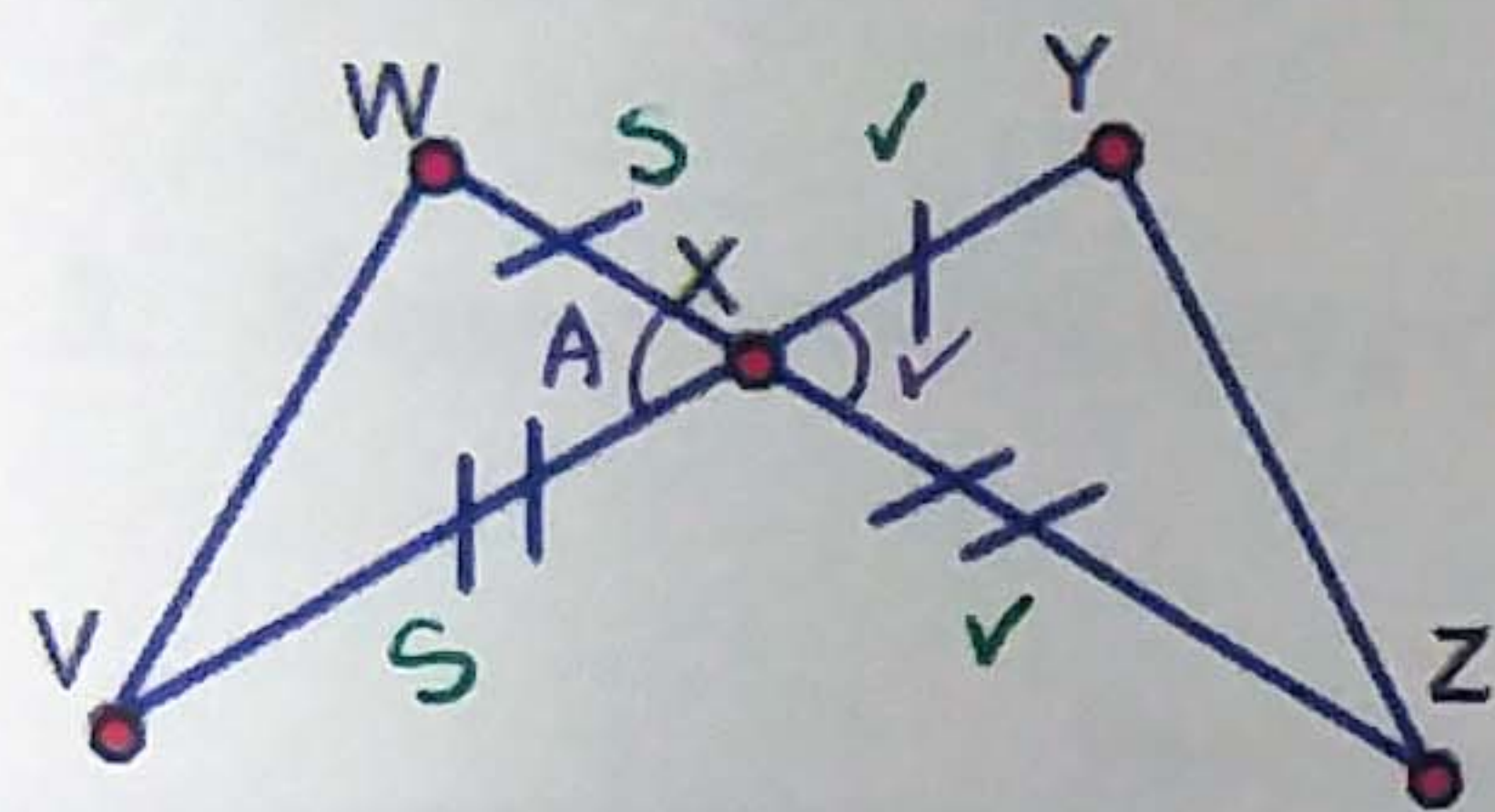
SAS ASA SSS  
AAS NOT CONGRUENT



3.  $\triangle \_ \cong \triangle \_$

Circle:

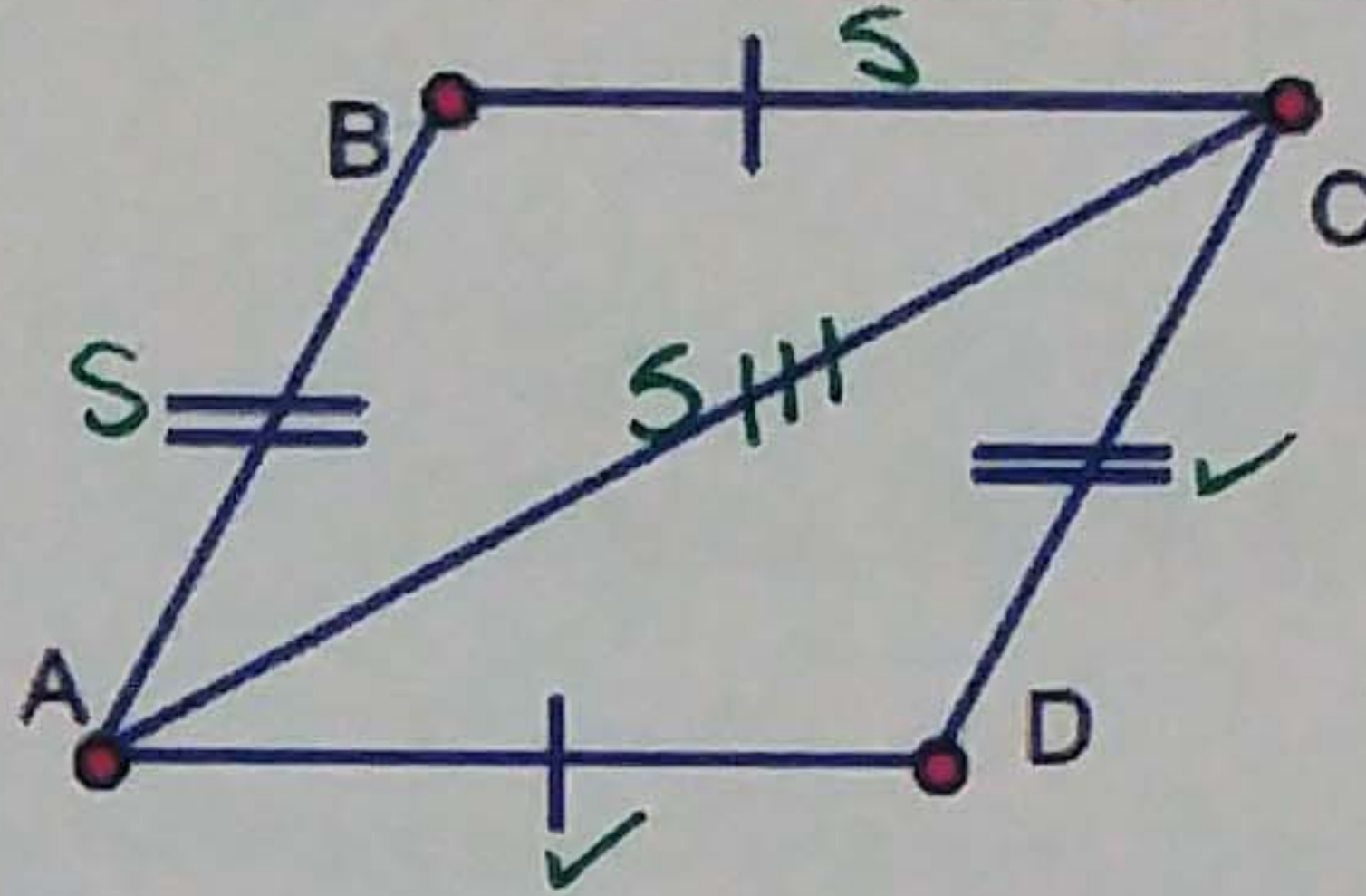
SAS ASA SSS  
AAS NOT CONGRUENT



4.  $\triangle WXV \cong \triangle YXZ$

Circle:

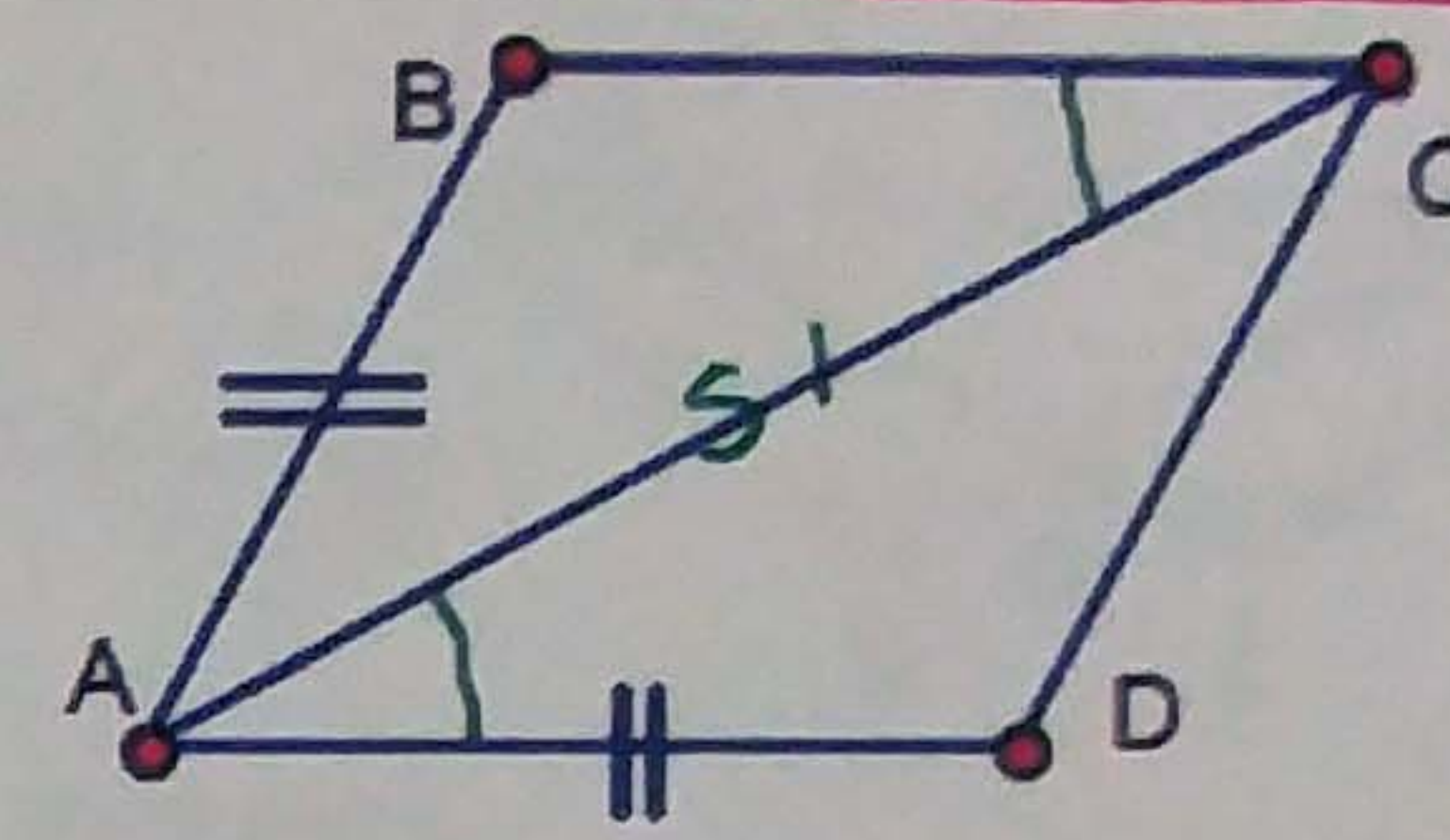
SAS ASA SSS  
AAS NOT CONGRUENT



5.  $\triangle CBA \cong \triangle ADC$

Circle:

SAS ASA SSS  
AAS NOT CONGRUENT



6.  $\triangle \_ \cong \triangle \_$

Circle:

SAS ASA SSS  
AAS NOT CONGRUENT

CPCTC: Corresponding Parts of Congruent Triangles are Congruent

Ok.... But what does that *mean*??

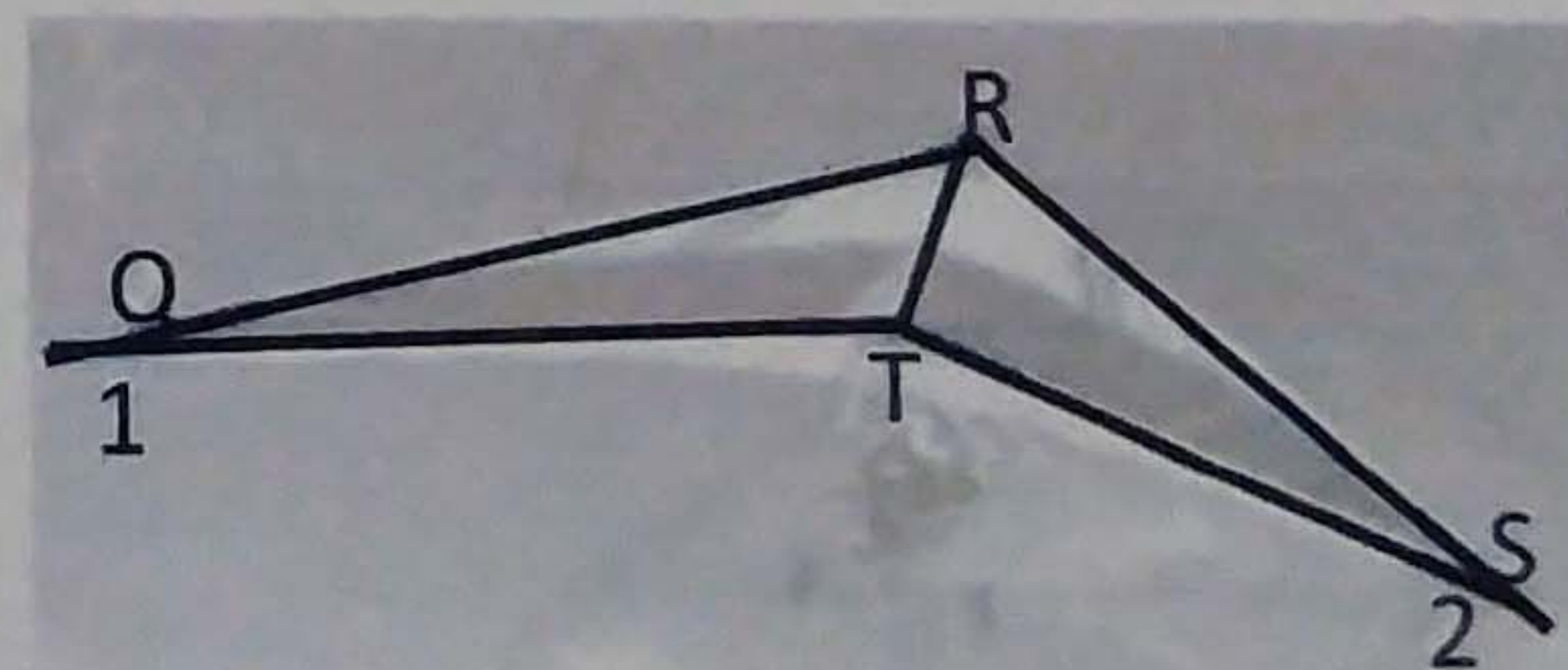
If two triangles are known to be congruent, then all corresponding angles/sides are also congruent. For example, if 2 triangles are congruent by SSS, then the angles of the 2 triangles are congruent.

\* CAN ONLY BE DONE AFTER PROVING  $\triangle s \cong$  !

1. Explain how you can use the given information to prove that the hang glider parts are congruent.

Given:  $\angle 1 \cong \angle 2$ ,  $\angle RTQ \cong \angle RTS$

Prove:  $\overline{QT} \cong \overline{ST}$



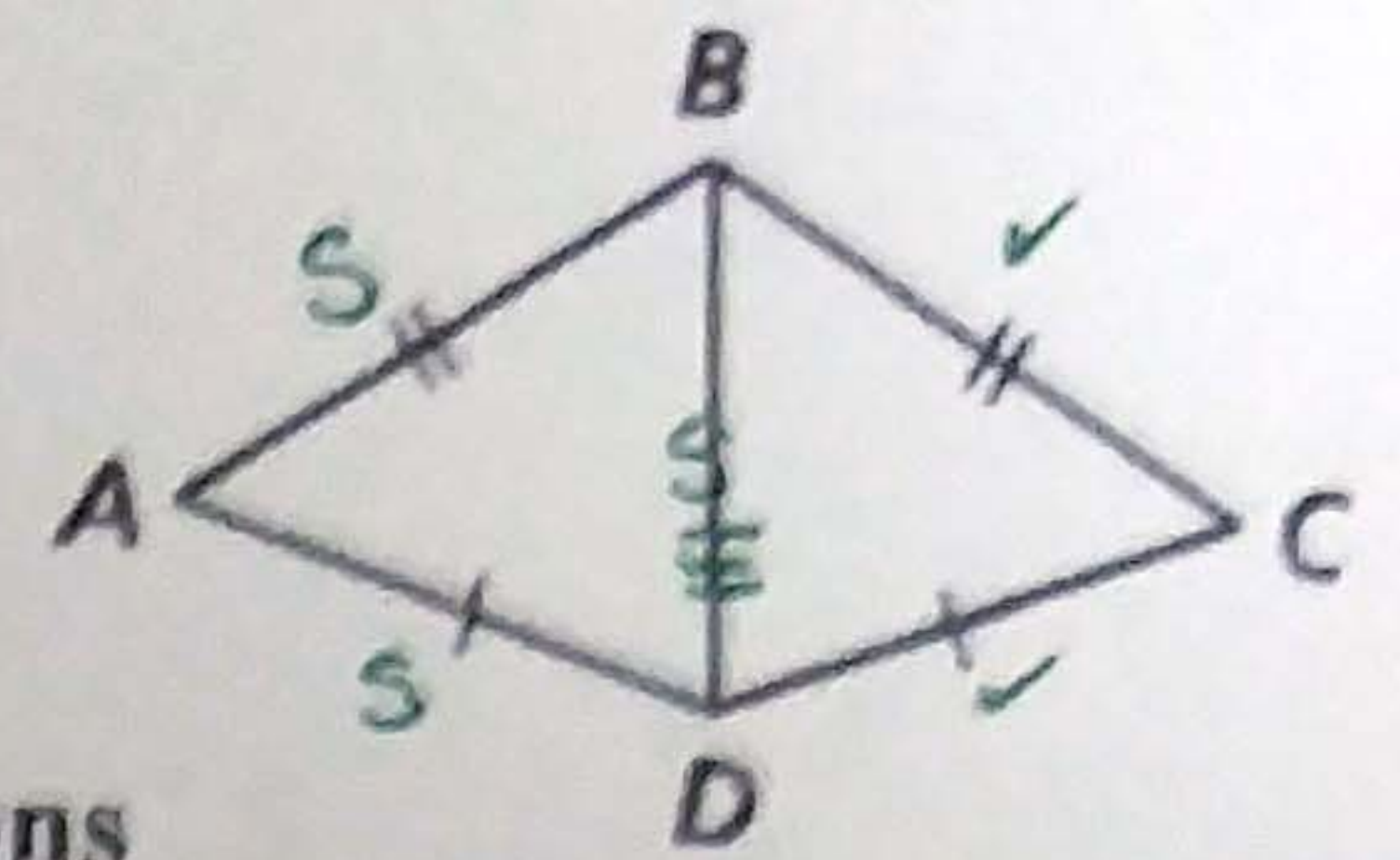
\*\*HINT: If you can show that  $\triangle QRT \cong \triangle SRT$ , then you know that  $\overline{QT} \cong \overline{ST}$  since these sides are corresponding!

Statements	Reasons
① $\angle 1 \cong \angle 2$ $\angle RTQ \cong \angle RTS$	① GIVEN
② $\overline{RT} \cong \overline{RT}$	② REFL. PROP. $\cong$
③ $\angle RQT \cong \angle RST$	③ $\cong$ SUPPS. THM (OR THIRD ANGLE THEOREM)
④ $\triangle RQT \cong \triangle RST$	④ AAS $\cong$
⑤ $\overline{QT} \cong \overline{ST}$	⑤ CPCTC



2. Write a two-column proof.

Given: the diagram  
Prove:  $\angle A \cong \angle C$



Statements

Reasons

$$1. \overline{AD} \cong \overline{CD}$$

$$\overline{AB} \cong \overline{CB}$$

1. GIVEN

$$2. \overline{BD} \cong \overline{BD}$$

2. REFL. PROP.  $\cong$

$$3. \triangle ABD \cong \triangle CBD$$

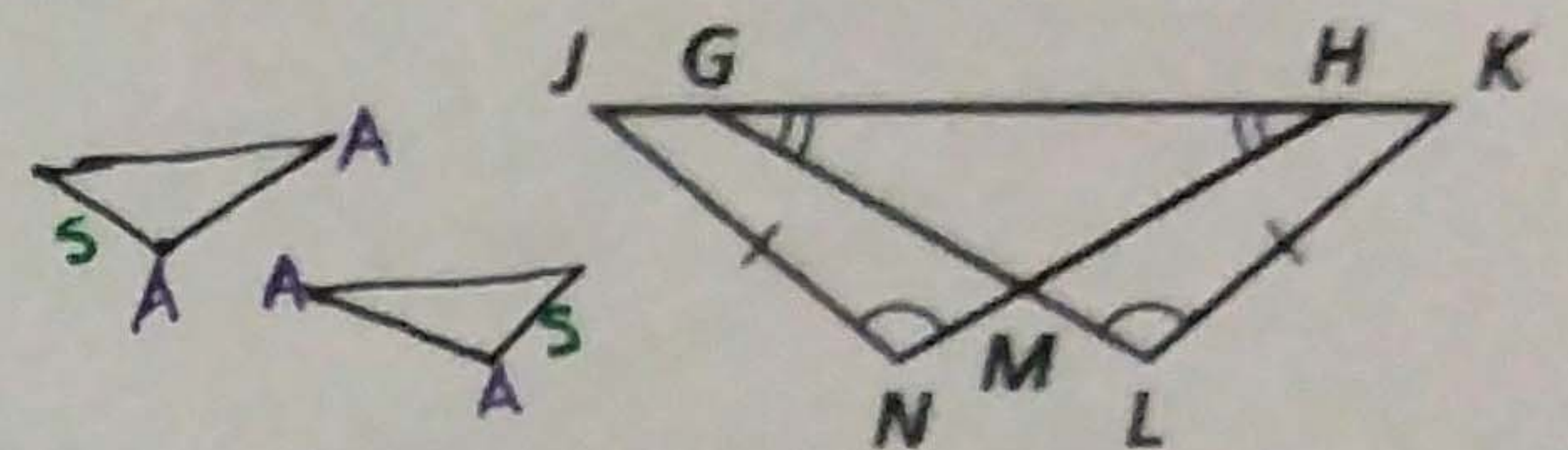
3. SSS  $\cong$

$$4. \angle A \cong \angle C$$

4. CPCTC

3. Write a two-column proof.

Given: the diagram  
Prove:  $\overline{GK} \cong \overline{HJ}$



Statements

Reasons

$$1. \overline{JN} \cong \overline{KL}$$

$$\angle JNH \cong \angle KLG$$

$$\angle JHN \cong \angle KGL$$

1. GIVEN

$$2. \triangle JNH \cong \triangle KLG$$

2. AAS  $\cong$

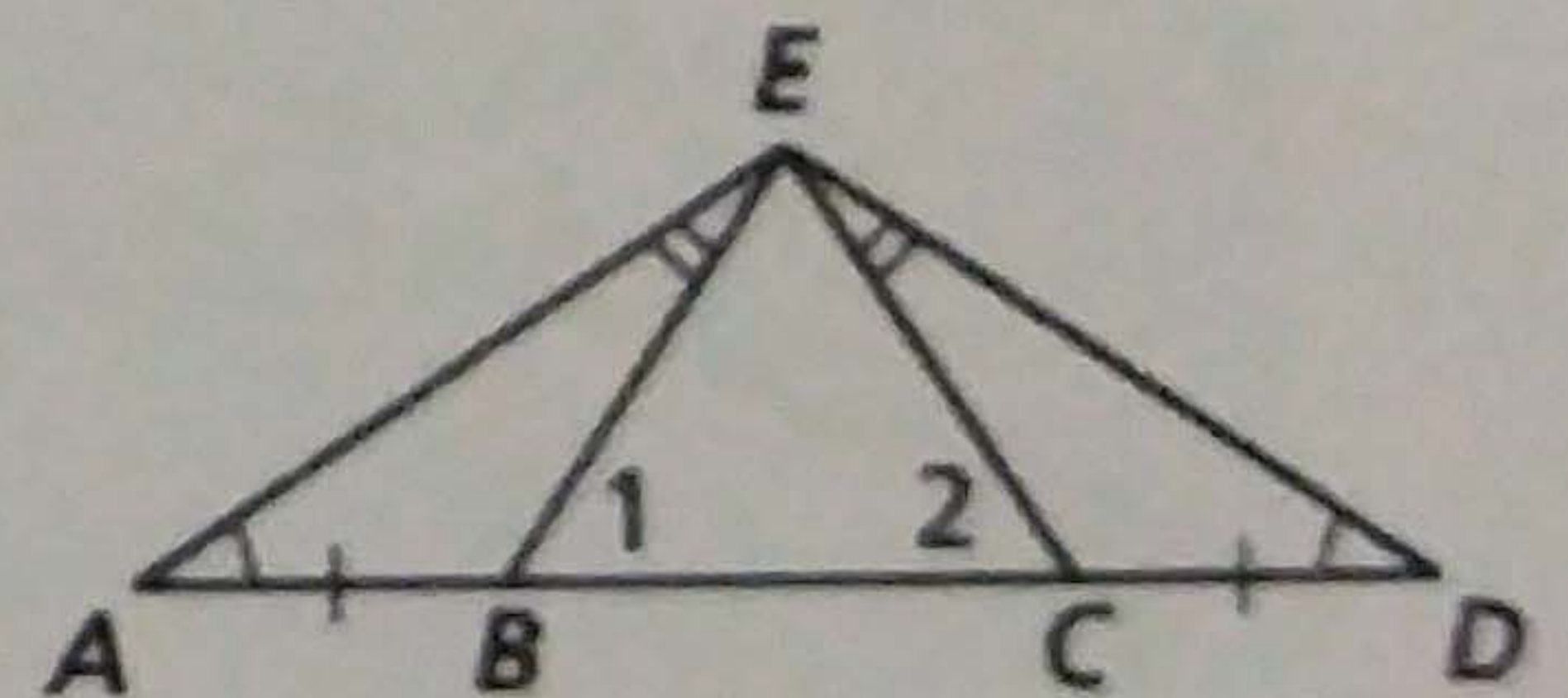
$$3. \overline{GK} \cong \overline{HJ}$$

3. CPCTC

Period 6 ONLY:

\*\*There are at least TWO different ways to write this proof: one with  $\cong$   $\Delta$ s and CPCTC, one without. Challenge yourself! Try to write both proofs ☺

Given: the diagram  
Prove:  $\angle 1 \cong \angle 2$



Statements

Reasons

$$1. \angle EAB \cong \angle EDC$$

$$\angle AEB \cong \angle DEC$$

$$\overline{AB} \cong \overline{CD}$$

1. GIVEN

$$2. \triangle EAB \cong \triangle EDC$$

2. AAS

$$3. \overline{EB} \cong \overline{EC}$$

3. CPCTC

$$4. \triangle EBC \text{ is ISOSC. } \Delta$$

4. DEF ISOSC.  $\Delta$

$$5. \angle 1 \cong \angle 2$$

5. BASE LS THM.

Statements

Reasons