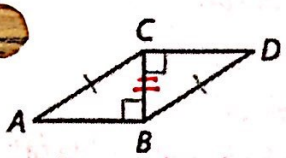
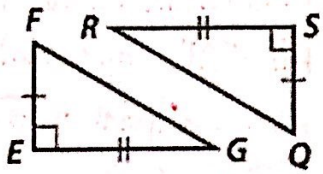
Are the two triangles congruent? Explain how you know.

1.



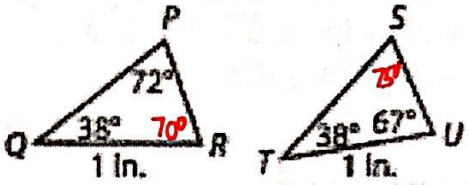
Yes (HL)
(-It is SSA but SSA works ONLY in right triangles)

2.



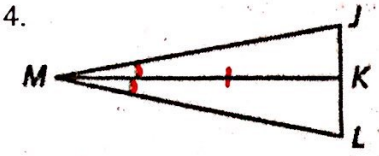
Yes, SAS

3.



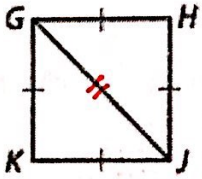
No, angles aren't congruent

4.



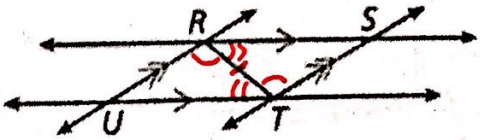
No, one angle + one side is not enough to prove triangles congruent

5.



Yes, SSS

6. $\triangle RST$ and $\triangle TUR$



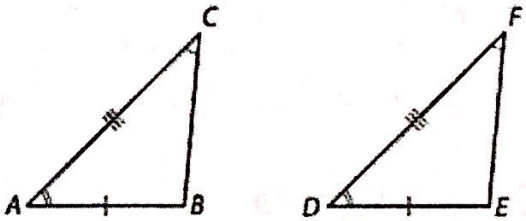
Yes, ASA
(2 alt. interiors + reflexive property)

7. Which of the following are reasons that justify why the triangles are congruent? Select all that apply.

A. SSA Triangle Congruence Theorem

B. SAS Triangle Congruence Theorem

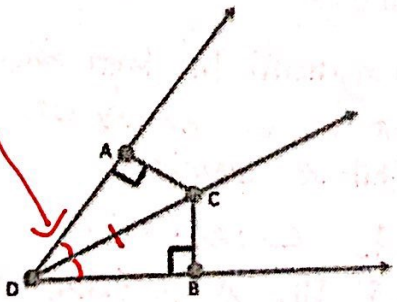
C. ASA Triangle Congruence Theorem



8. What does CPCTC stand for? What do we use it for in proofs?

Corresponding Parts of Congruent Triangles are Congruent
We use it after we have proved triangles congruent — to show that a pair of sides or angles is congruent that we didn't already know.

9. Given: $\overline{DC}$ bisects $\angle ADB$
Prove: $\overline{AC} \cong \overline{BC}$



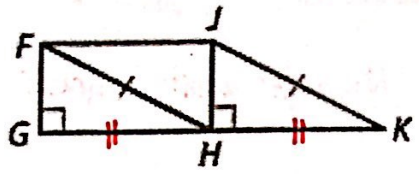
Write a paragraph proof.

Since $\overline{DC}$ bisects $\angle ADB$, we know $\angle ADC \cong \angle BDC$ by the definition of an angle bisector. $\angle A \cong \angle B$ since they are both right angles. $\overline{DC} \cong \overline{DC}$ by the reflexive property. Thus $\triangle ADC \cong \triangle BDC$ by AAS. And now $\overline{AC} \cong \overline{BC}$ by CPCTC.

QED

Write a two column proof.

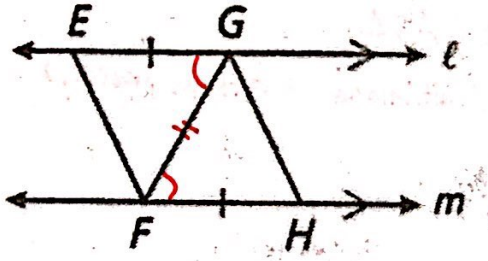
10. **Given:** $\angle FGH$ and $\angle JHK$ are right angles. H is the midpoint of $\overline{GK}$. $\overline{FH} \cong \overline{JK}$
Prove: $\triangle FGH \cong \triangle JHK$

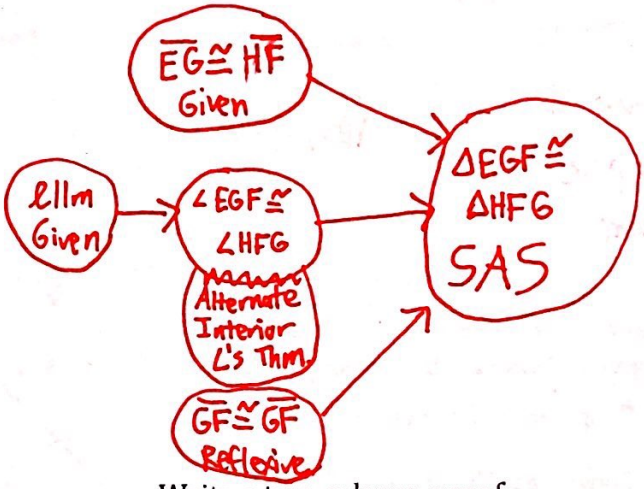


1) $\triangle FGH$ & $\triangle JHK$ are right triangles	Given
H 2) $\overline{FH} \cong \overline{JK}$ (Hypotenuse)	Given
3) H is the midpoint of $\overline{GK}$.	Given
L 4) $\overline{GH} \cong \overline{HK}$ (Leg)	Definition of Midpoint
5) $\triangle FGH \cong \triangle JHK$	HL □

Write a flow chart proof.

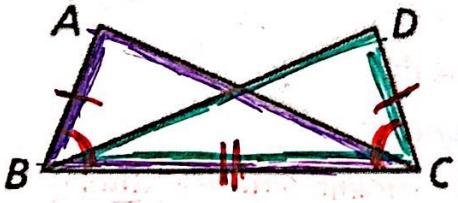
11. **Given:** $\ell \parallel m$, $\overline{EG} \cong \overline{HF}$
Prove: $\triangle EGF \cong \triangle HFG$





Write a two column proof.

12. **Given:** $\overline{AB} \cong \overline{DC}$, $\angle ABC \cong \angle DCB$
Prove: $\angle A \cong \angle D$

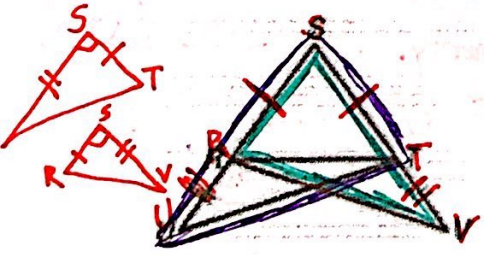


1) $\overline{AB} \cong \overline{DC}$	Given
2) $\angle ABC \cong \angle DCB$	Given
3) $\overline{BC} \cong \overline{CB}$	Reflexive Property
4) $\triangle ABC \cong \triangle DCB$	SAS
5) $\angle A \cong \angle D$	CPCTC

QED.

Challenge!

Given: $\overline{RU} \cong \overline{TV}$, $\overline{RS} \cong \overline{TS}$



Prove: $\overline{RV} \cong \overline{TU}$

Write a paragraph proof.

The short sides, $\overline{SR}$ and $\overline{ST}$, are congruent. The longer sides ($\overline{SU}$ and $\overline{SV}$) are also congruent because they are both made of two shorter sides that are congruent. ($SR + RU = SU$, $ST + TV = SV$) Also $\angle S$ overlaps in both triangles, so $\angle S \cong \angle S$. Thus, $\triangle STU \cong \triangle SRV$ by SAS. (See diagrams at left.) Then $\overline{RV} \cong \overline{TU}$ by CPCTC. □