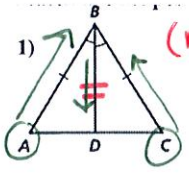
Name: _____ Date: _____

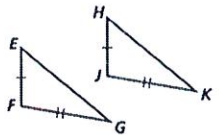
More Practice with Proving Triangles Congruent

Determine whether the triangles are congruent. If they are congruent fill in the congruence statement and name the reason (**SSS**, **SAS**, **AAS**, **ASA**, or **HL**). If they are not congruent, put an **X** in the congruence statement and write **not** ≅.

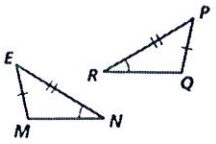
1) 

(reflexive)

1. ΔABD ≅ Δ CBD by SAS

2. 

ΔEFG ≅ Δ X by X

3. 

ΔEMN ≅ Δ X by X

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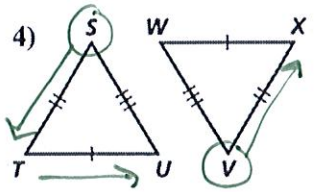
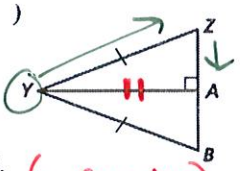
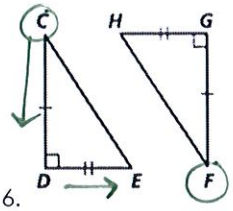
4) 

4. ΔSTU ≅ Δ VXW by SSS

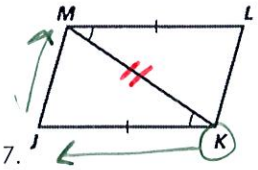
) 

5. (reflexive)

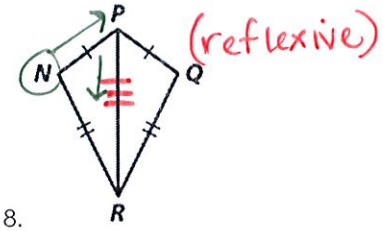
ΔYZA ≅ Δ YBA by HL



6. ΔCDE ≅ Δ FGH by SAS

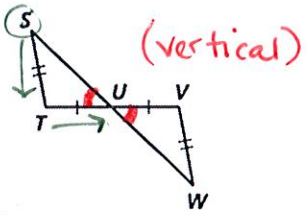


7. ΔKJM ≅ Δ MLK by SAS



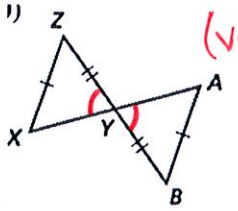
(reflexive)

8. ΔNPR ≅ Δ QPR by SSS



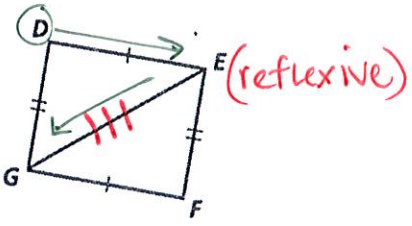
(vertical)

9. ΔSTU ≅ Δ X by X

) 

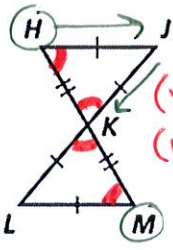
(vertical)

10. ΔXYZ ≅ Δ X by X



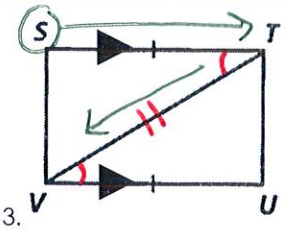
(reflexive)

11. ΔDEG ≅ Δ FGE by SSS



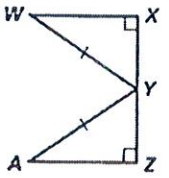
(vertical)
(isosceles Δ)
∠H ≅ ∠M
↓ ↓
∠K ∠K

12. ΔHJK ≅ Δ MLK by SSS
SAS
ASA
AAS

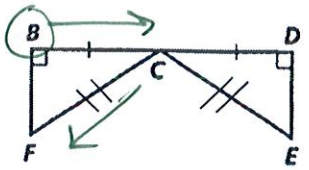
13. 

(reflexive)
(alt. int. ∠)

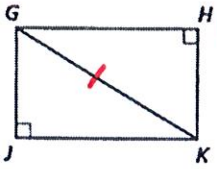
ΔSTV ≅ Δ UVT by SAS

14. 

ΔWXY ≅ Δ X by X

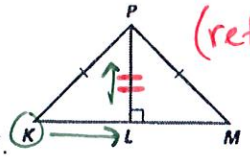
15. 

ΔBCF ≅ Δ DCE by HL

16. 

(reflexive)

ΔGJK ≅ Δ X by X

17. 

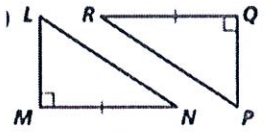
(reflexive)

ΔKLP ≅ Δ MLP by HL

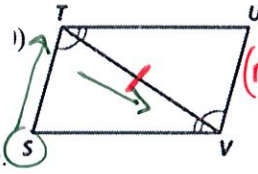
18. 

(reflexive)
(isos. Δ)

ΔNSQ ≅ Δ X by X

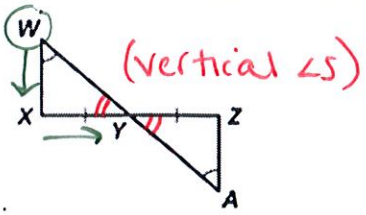
19. 

ΔLMN ≅ Δ X by X

20. 

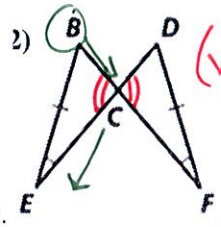
(reflexive)

ΔSTV ≅ Δ UVT by ASA

21. 

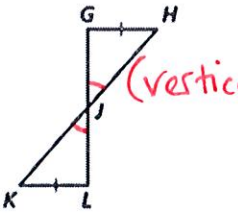
(vertical ∠s)

ΔWXY ≅ Δ AZY by AAS

22. 

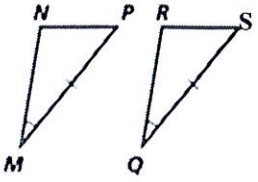
(vertical ∠s)

ΔBCE ≅ Δ DCF by AAS

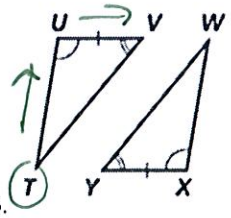
23. 

(vertical ∠s)

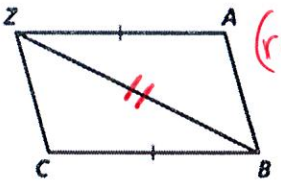
ΔGHJ ≅ Δ X by X

24. 

ΔNPM ≅ Δ X by X

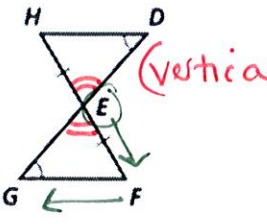
25. 

ΔTUV ≅ Δ WXY by ASA

26. 

(reflexive)

ΔBCZ ≅ Δ X by X

27. 

(vertical ∠s)

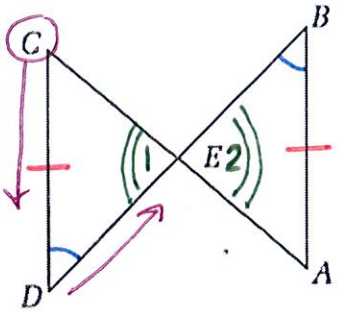
ΔEFG ≅ Δ EHD by AAS

Use the given information to mark the diagram appropriately. Fill in the congruence statement and name the reason (**SSS**, **SAS**, **AAS**, **ASA**, or **HL**).

28. **Given:** $\overline{CD} \cong \overline{AB}$; $\angle B \cong \angle D$

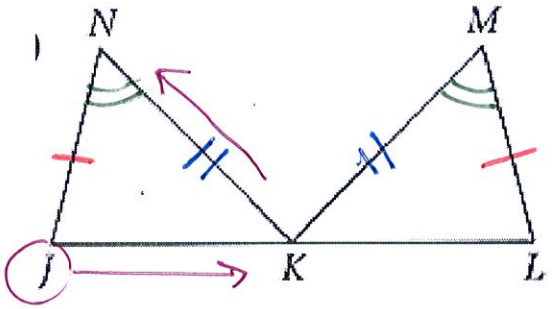
$\angle 1 \cong \angle 2$ (vertical $\angle$s $\cong$)

$\Delta CDE \cong \Delta$ ABE by AAS



29. **Given:** $\overline{JN} \cong \overline{LM}$; $\overline{NK} \cong \overline{MK}$; $\angle N \cong \angle M$

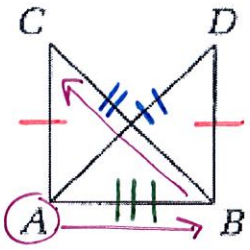
$\Delta JKN \cong \Delta$ LKM by SAS



30. **Given:** $\overline{AC} \cong \overline{BD}$; $\overline{AD} \cong \overline{BC}$

$\overline{AB} \cong \overline{BA}$ (reflexive prop)

$\Delta ABC \cong \Delta$ BAD by SSS



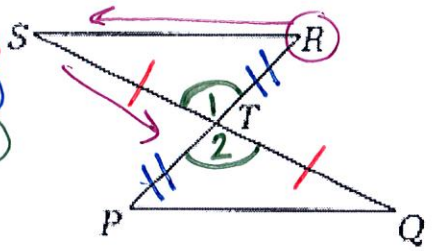
31. **Given:** $\overline{SQ}$ and $\overline{PR}$ bisect each other

$\overline{ST} \cong \overline{QT}$ (def. of bisect)

$\overline{RT} \cong \overline{PT}$ (def. of bisect)

$\angle 1 \cong \angle 2$ (vertical $\angle$s $\cong$)

$\Delta RST \cong \Delta$ PQT by SAS

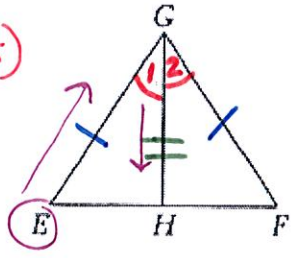


32. **Given:** $\overline{GH}$ bisects $\angle EGF$; $\overline{EG} \cong \overline{FG}$

$\angle 1 \cong \angle 2$ (def of $\angle$ bisect)

$\overline{GH} \cong \overline{GH}$ (reflexive)

$\Delta EGH \cong \Delta$ FGH by SAS

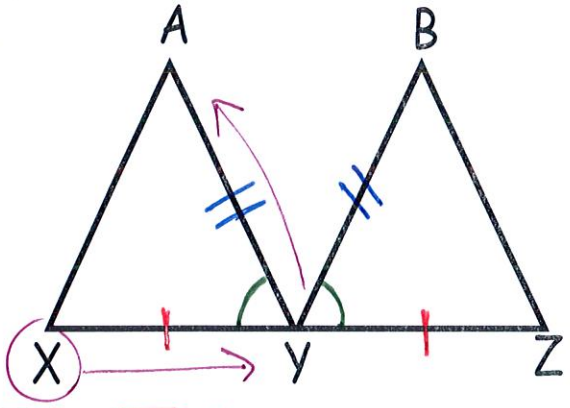


OR ASA

$\angle E \cong \angle F$ (isos. Δ)

For the following problems, complete the triangle congruence statement and name the postulate that justifies the statement.

33.

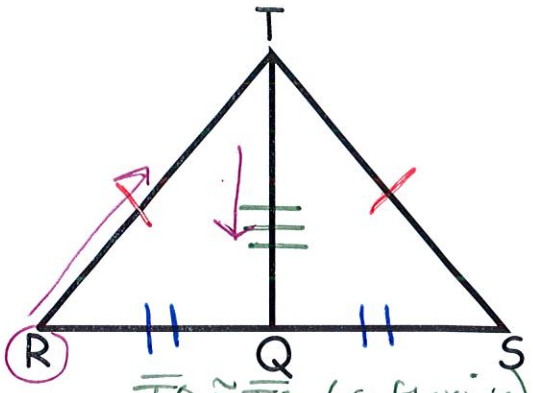


$\overline{XY} \cong \overline{ZY}$ (def. of midpt)

Y is the **midpoint** of XZ, $\overline{AY} \cong \overline{BY}$ and $\angle AYX \cong \angle BYZ$.

$\Delta XYA \cong \Delta ZYB$ by SAS

34.



$\overline{TQ} \cong \overline{TQ}$ (reflexive)

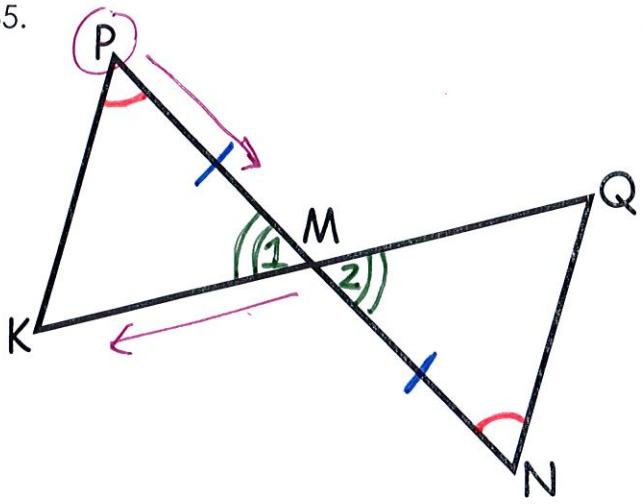
$\overline{RT} \cong \overline{ST}$ (def. of isos. Δ)

ΔRTS is **isosceles** with legs RT and TS.

Q is the **midpoint** of RS. $\overline{RQ} \cong \overline{SQ}$ (def. of midpt)

$\Delta RTQ \cong \Delta STQ$ by SSS

35.



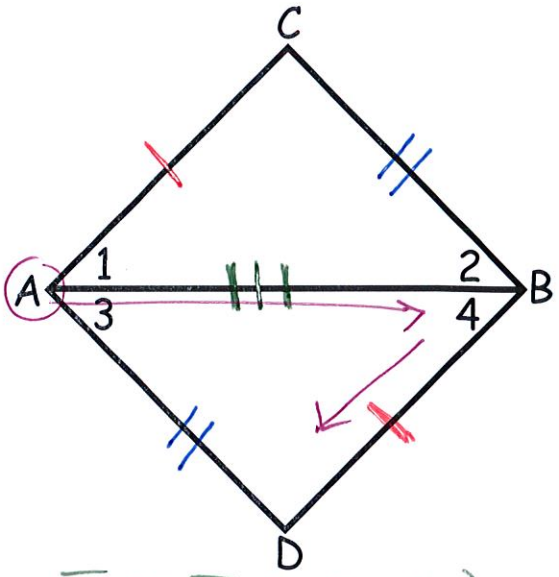
$\angle 1 \cong \angle 2$ (vertical $\angle$s $\cong$)

$\angle P \cong \angle N$ and (def. of midpt)

M is the **midpoint** of PN. $\overline{PM} \cong \overline{NM}$

$\Delta PMK \cong \Delta NMQ$ by ASA

36.



$\overline{AB} \cong \overline{BA}$ (reflexive)

$\overline{AC} \cong \overline{BD}$ and $\overline{AD} \cong \overline{BC}$

$\Delta ABD \cong \Delta BAC$ by SSS