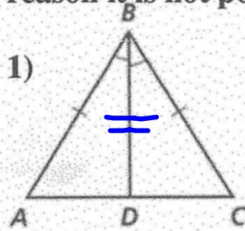a) Determine whether the following triangles are congruent.
b) If they are, name the triangle congruence (pay attention to proper correspondence when naming the triangles) and then identify the Theorem or Postulate (SSS, SAS, ASA, AAS, HL) that supports your conclusion.
c) Be sure to show any additional congruence markings you used in your reasoning.
d) If the triangles cannot be proven congruent, state "not possible." Then given the reason it is not possible.
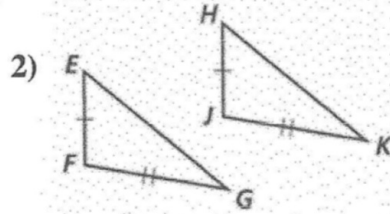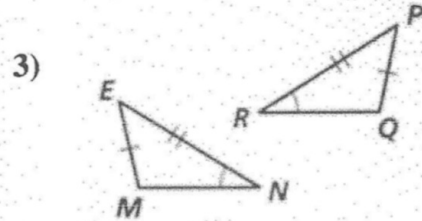
1)

Congruence:

ΔABD ≅ Δ _CBD_

Reason: _SAS_

2)

_No._

Congruence:

ΔEFG ≅ Δ _____

Reason:

3)

_NO_

Congruence:

ΔEMN ≅ Δ _____

Reason:

4)

Congruence: _Yes_

ΔSTU ≅ Δ _VXW_

Reason: _SSS_

5)

Congruence: _NO_

ΔYZA ≅ Δ _____

Reason:

6)
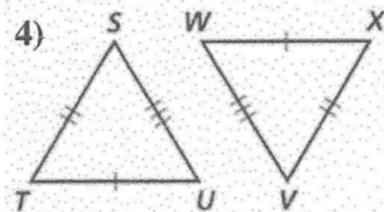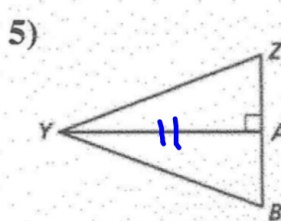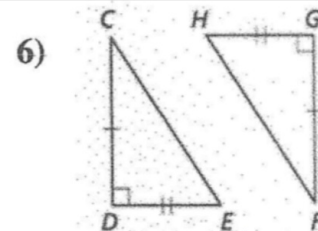
Congruence: _Yes_

ΔCDE ≅ Δ _FGH_

Reason: _SAS_

7)

Congruence: **Yes**
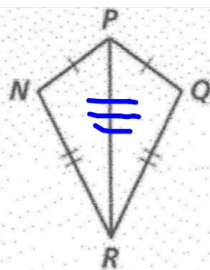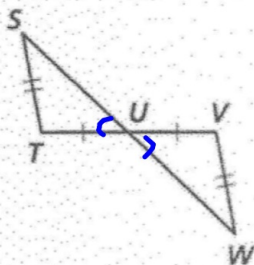
ΔKJM ≅ Δ __MLK__

Reason: **SAS**

8)

Congruence: **yes**

ΔNPR ≅ Δ __QPR__

Reason: **SSS**

9)

Congruence: **NO.**

ΔSTU ≅ Δ _____

Reason:

10)

Congruence: **NO.**

ΔXYZ ≅ Δ _____

Reason:

11)

Congruence: **Yes**

ΔDEG ≅ Δ __FGE__

Reason: **SSS**

12)

Congruence: **Yes**

ΔHJK ≅ Δ _____

Reason: **SSS**

SAS

13)
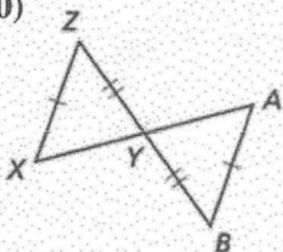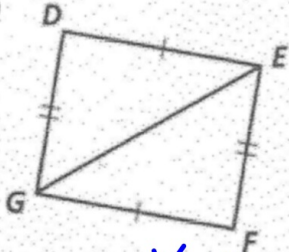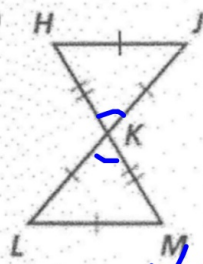
Congruence: **NO**

$\triangle STV \cong \triangle$ _____

Reason:

14)

Congruence: **NO**

$\triangle WXY \cong \triangle$ _____

Reason:

15)

Congruence: **NO**

$\triangle BCF \cong \triangle$ _____

Reason:

16)

Congruence: **NO**

$\triangle GJK \cong \triangle$ _____

Reason:

17)

Congruence: **NO**

$\triangle KLP \cong \triangle$ _____
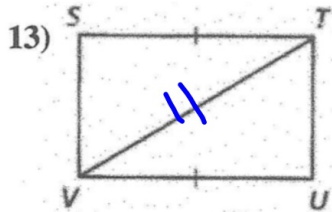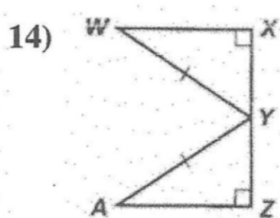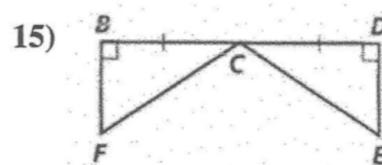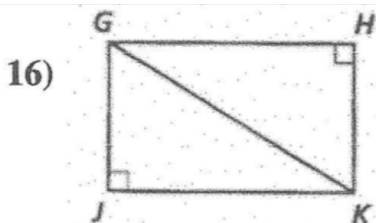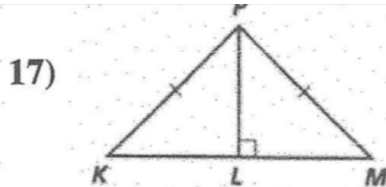
Reason:

18)
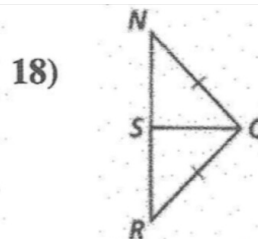
Congruence: **NO**

$\triangle NSQ \cong \triangle$ _____

Reason:
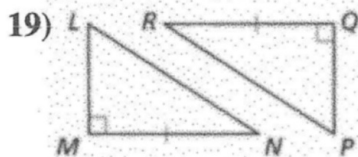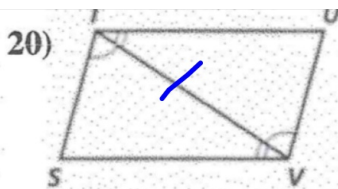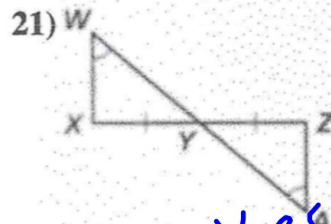
19)

Congruence: NO

ΔLMN ≅ Δ _____

Reason:

20)

Congruence: Yes

ΔSTV ≅ Δ UVT

Reason: ASA

21)

Congruence: Yes

ΔWXY ≅ Δ AZY

Reason ASA
AAS

22)

Congruence: Yes

ΔBCE ≅ Δ DCF

Reason: AAS

23)

Congruence: NO

ΔGHJ ≅ Δ _____

Reason:

24)

Congruence: No

ΔNPM ≅ Δ _____

Reason:

25)
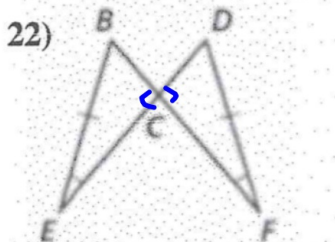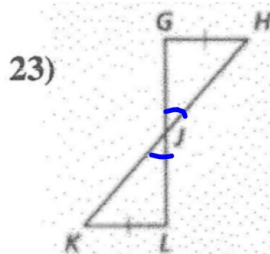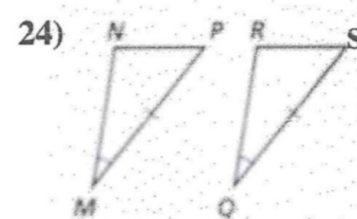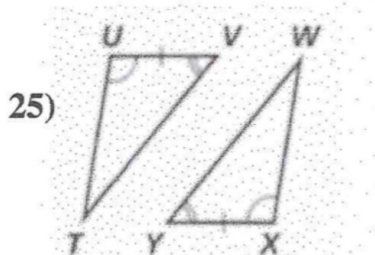
Congruence: *yes*

$\Delta TUV \cong \Delta$ **WXY**

Reason: **ASA**

26)
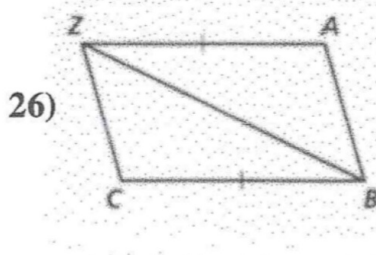
Congruence: **NO**

$\Delta BCZ \cong \Delta$ _____

Reason:

27)
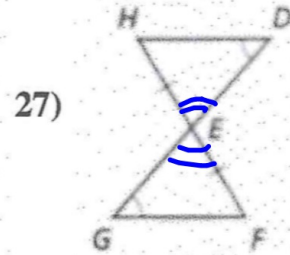
Congruence: *yes*

$\Delta EFG \cong \Delta$ **EHD**

Reason: **AAS**

Use the given information to mark the diagram appropriately. Name the triangle congruence (pay attention to proper correspondence when naming the triangles) and then identify the Theorem or Postulate (SSS, SAS, ASA, AAS, HL) that would be used to prove the triangles congruent. If the triangles cannot be proven congruent, state "not possible."

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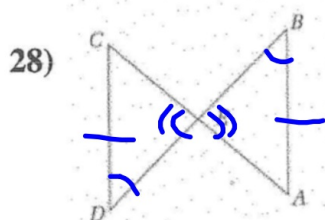
Given: $\overline{CD} \cong \overline{AB}$; $\angle B \cong \angle D$

ASA   AAS

Congruence: **ABE**

$\Delta CDE \cong \Delta$ **ABE**

29)

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

SAS
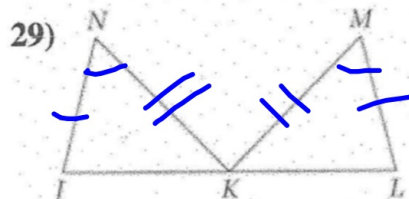
Congruence: **LKM**

$\Delta JKN \cong \Delta$ **LKM**

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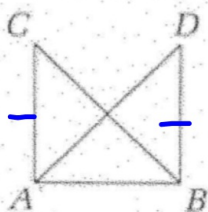
Given: $\overline{AC} \cong \overline{BD}$; $\overline{AD} \cong \overline{BC}$

Congruence:

$\triangle ABC \cong \triangle$ ___BAD___

Reason: SSS
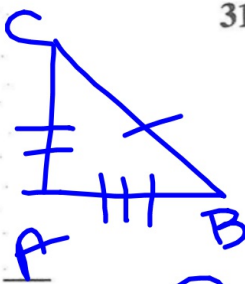
31)

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

Congruence: yes

$\triangle RST \cong \triangle$ ___PQT___

Reason: SAS

32)

Given: $\overline{GH}$ bisects $\angle EGF$; $\overline{EG} \cong \overline{FG}$
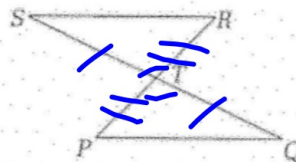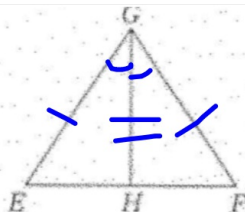
Congruence: $\triangle EGH \cong \triangle$ ___FGH___

Reason: SAS

**Objective:** I will be able to use triangle congruence and CPCTC to prove that two triangles are congruent.

With SSS, SAS, ASA, and AAS you know how to use three parts of triangles to show that the triangles are _____≅_____. Once you have triangles congruent, you can make conclusions about their other parts because, by definition, corresponding parts of congruent triangles are congruent. You can abbreviate this as *CPCTC*

Example 1: Umbrella Frames: In an umbrella frame, the stretchers are congruent, and they open to angles of equal measure.

Given: $SL \cong SR$ and $\angle 1 \cong \angle 2$

Prove that the angles formed by the shaft and the ribs are congruent.

Prove $\angle 3 \cong \angle 4$
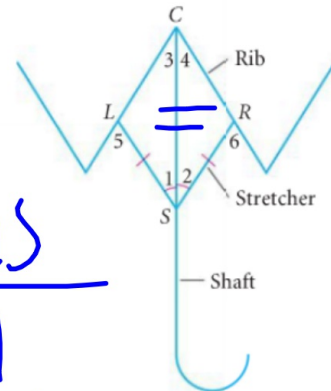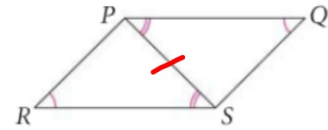
Statements	Reasons
1. $SL \cong SR$	Given
2. $\angle 1 \cong \angle 2$	Given
3. $SC \cong SC$	Refl.
4. $\triangle LSC \cong \triangle RSC$	SAS

$\angle 3 \cong \angle 4$

CPCTC

QC 1: Given $\angle Q \cong \angle R$, $\angle QPS \cong \angle RSP$
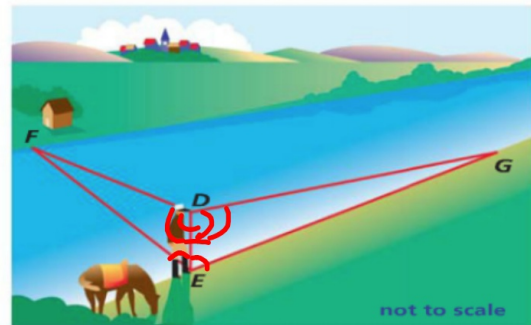
Prove $SQ \cong PR$

Statements | Reasons

Statements	Reasons
$\angle Q \cong \angle R$	Given
$\angle QPS \cong \angle RSP$	"
$PS \cong PS$	Refl.
$\triangle QPS \cong \triangle RSP$	AAS
$SQ \cong PR$	CPCTC

Example 2: Given $\angle DEG \cong \angle DEF$ are right angles; $\angle EDG \cong \angle EDF$.

Prove $EF \cong EG$

Statements | Reasons

Statements	Reasons
$\angle EDG \cong \angle EDF$	Given
$DE \cong DE$	Refl.
$\angle DEG \cong DEF$	All rt $\angle$'s $\cong$.
$\triangle DEF \cong \triangle DEG$	ASA
$EF \cong EG$	CPCTC

not to scale

Hwk #23 - due tomorrow

Sect. 4.4

Pages: 222-224

Problems: 2-6, 8, 12

IXL #13 - K.3 & K.4 due Friday at 4pm!