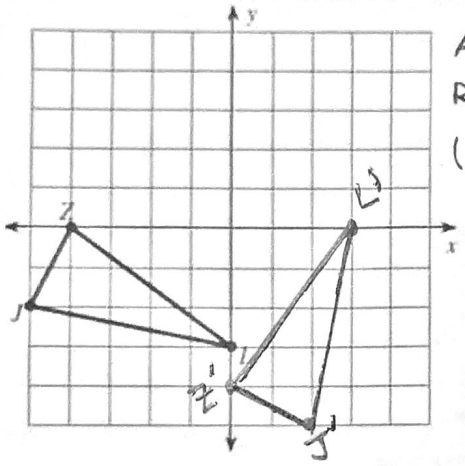
UNIT 2 TEST REVIEW MATERIALS

Name: Key

Unit 1 Material

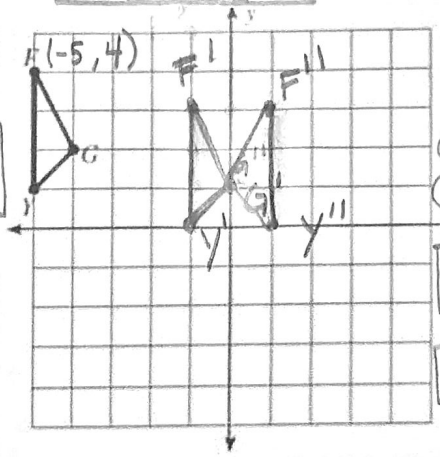
Graph the image of the figure using the transformation given and give the algebraic rule.

1) Rotation 90° counter clockwise about the origin



Algebraic Rule: $(x,y) \rightarrow (-y, x)$

2) Translation 4 units right and 1 down, then reflect over the y-axis



Algebraic Rule:

① $(x+4, y-1)$

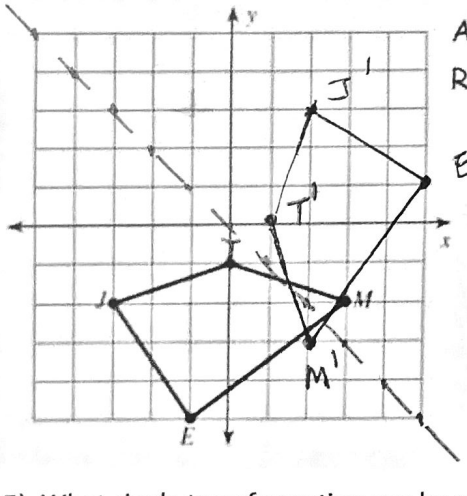
② $(-x, y)$

$(-(x+4), y-1)$

or

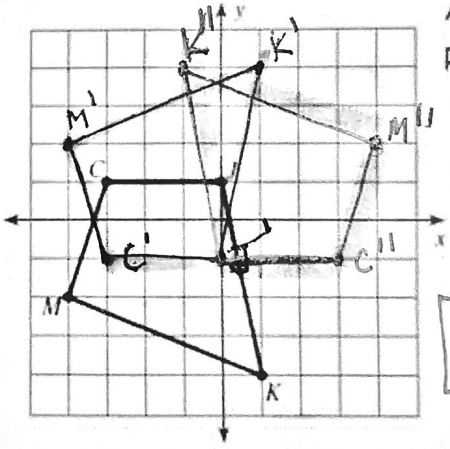
$(-x-4, y-1)$

3) reflect of the line $y = -x$



Algebraic Rule: $(-y, -x)$

4) Reflect over the the x-axis then the y-axis



Algebraic Rule:

x-axis $(x, -y)$

y-axis $(-x, y)$

$(-x, -y)$

5) What single transformation can be performed to replicate the composition of transformations in #4?

Same as a 180° rotation

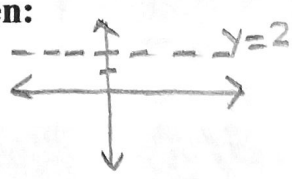
Find the coordinates of the vertices of the figure using the transformation given:

6) rotation 180° about the origin $(-x, -y)$
$E(2, -2)$, $J(1, 2)$, $R(3, 3)$, $S(5, 2)$

Vertices:

$E'(-2, 2)$ $J'(-1, -2)$ $R'(-3, -3)$ $S'(-5, -2)$

7) reflection across $y = 2$
$J(1, 3)$, $U(0, 5)$, $R(1, 5)$, $C(3, 2)$



Vertices:

$J'(1, 1)$ $U'(0, -1)$ $R'(1, -1)$ $C'(3, 2)$

8) translation: 7 units right and 1 unit down $(x+7, y-1)$
$J(-3, 1)$, $F(-2, 3)$, $N(-2, 0)$

Vertices:

$J'(4, 0)$ $F'(5, 2)$ $N'(5-1)$

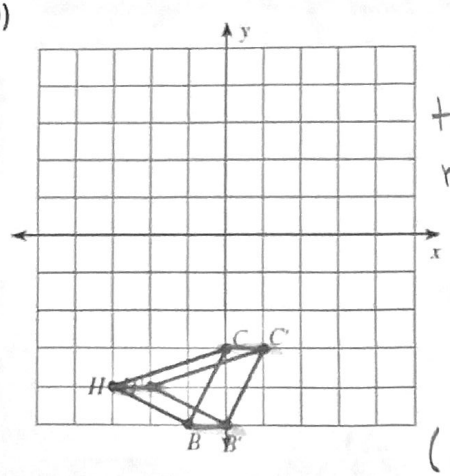
9) translation: 6 units right and 3 units down $(x+6, y-3)$
$S(-3, 3)$, $C(-1, 4)$, $W(-2, -1)$

Vertices:

$S'(3, 0)$ $C'(5, 1)$ $W'(4, -4)$

Write a description of the transformation which occurred from the pre-image to image below. (connect corresponding points to help you)

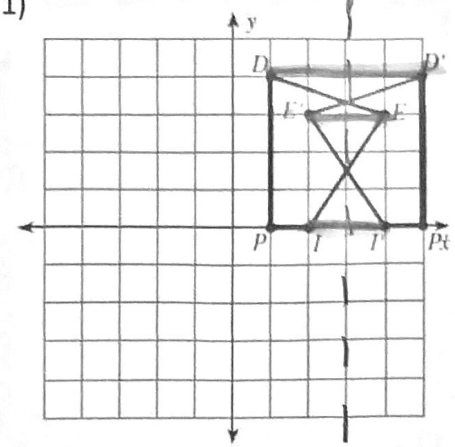
10)



Description: translate right 1

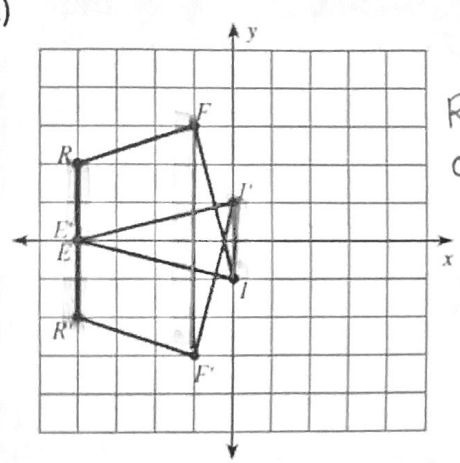
Algebraic Rule: $(x+1, y)$

11)



Description: Reflect over line $x=3$

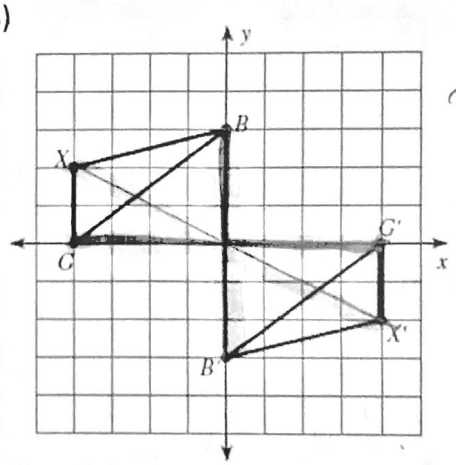
12)



Description: Reflect over the x-axis $(y=0)$

Algebraic Rule: $(x, -y)$

13)

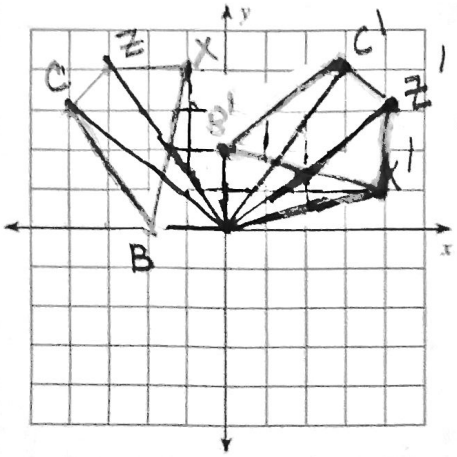


Description: Rotate 180° about the origin

Algebraic Rule: $(-x, -y)$

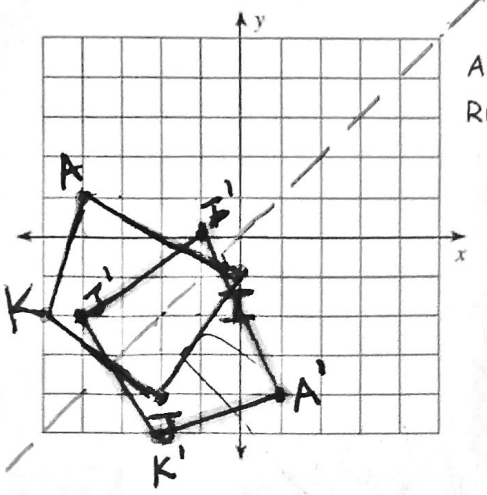
Graph the image of the figure using the transformation given and write the algebraic rule.

14) rotation 90° clockwise about the origin
$B(-2, 0)$, $C(-4, 3)$, $Z(-3, 4)$, $X(-1, 4)$



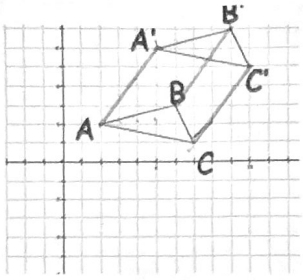
Algebraic Rule: $(y, -x)$

15) reflection across $y = x$
$K(-5, -2)$, $A(-4, 1)$, $I(0, -1)$, $J(-2, -4)$



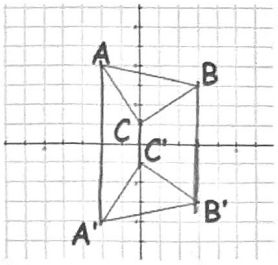
Algebraic Rule: (y, x)

Describe the transformations on the graph and write the algebraic rule.

16) 

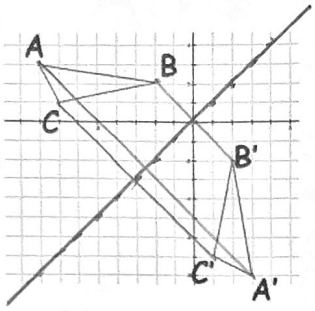
Description: translation right 3, up 4

Algebraic Rule: (x+3, y+4)

17) 

Description: Reflection over x-axis (y=0)

Algebraic Rule: (x, -y)

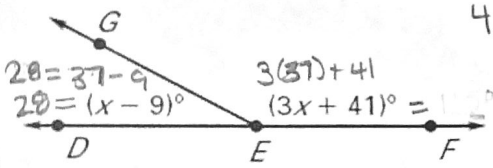
18) 

Description: Reflection over y=x

Algebraic Rule: (y, x)

Unit 2 Material

1) Find m∠DEG and m∠GEF.



$(x-9)+(3x+41)=180$

$4x+32=180$

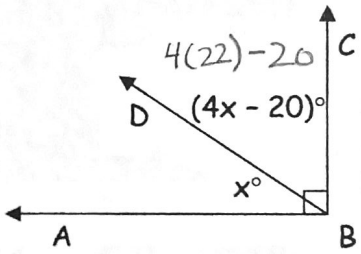
$4x=148$

$x=37$

m∠DEG = 28°

m∠GEF = 152°

2) Find m∠DBC. = 68°



$x+(4x-20)=90$

$5x-20=90$

$5x=110$

$x=22$

3) ∠1 and ∠2 are complementary. m∠1 = 2x + 7 and m∠2 = 4x − 19. Find the measure of each angle.

$m\angle 1 + m\angle 2 = 90°$

$(2x+7)+(4x-19)=90°$

$6x-12=90°$

$6x=102$

$x=17$

$m\angle 1 = 2x+7 = 2(17)+7$

m∠1 = 41°

$m\angle 2 = 4x-19 = 4(17)-19$

m∠2 = 49°

4) ∠3 and ∠4 are supplementary. m∠3 = 5x + 22 and m∠4 = 7x + 2. Find the measure of each angle.

$m\angle 3 + m\angle 4 = 180$

$(5x+22)+(7x+2)=180$

$12x+24=180$

$12x=156$

$x=13$

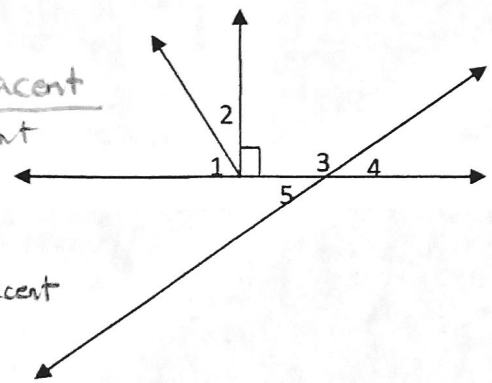
$m\angle 3 = 5x+22 = 5(13)+22$

m∠3 = 87°

$m\angle 4 = 7x+2 = 7(13)+2$

m∠4 = 93°

5) Identify each pair of angles as adjacent, vertical, complementary, supplementary, and/or linear pair.



next to each other

a) ∠1 and ∠2 complementary, adjacent

b) ∠3 and ∠4 linear pair & adjacent & supplementary

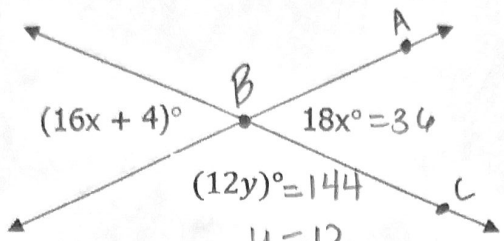
c) ∠5 and ∠4 vertical ∠s

d) ∠3 and ∠5 linear pair & adjacent & supplementary

6) $x =$ 2

$y =$ 12

$m\angle ABC =$ 36°



$16x + 4 = 18x$

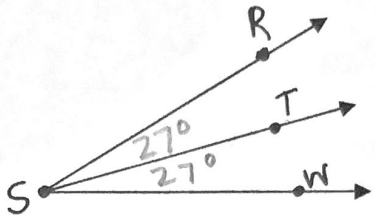
$4 = 2x$

$x = 2$

$y = 12$

7) $\overrightarrow{ST}$ bisects $\angle RSW$, $m\angle RST = 27°$

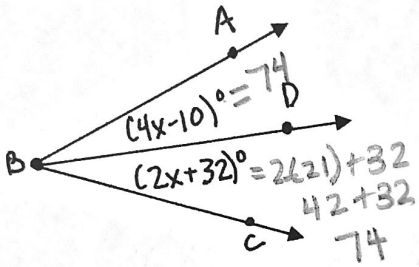
$m\angle TSW =$ 27° $m\angle WSR =$ 54°



8) $\overrightarrow{BD}$ bisects $\angle ABC$

$x =$ 21

$m\angle ABC =$ 148°



$4x - 10 = 2x + 32$

$4x - 2x = 10 + 32$

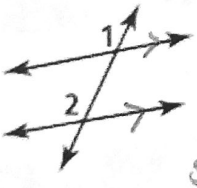
$2x = 42$

$x = 21$

$\angle ABC =$

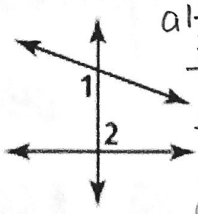
Classify each pair of angles as corresponding, alternate interior, alternate exterior, consecutive interior, or consecutive exterior. (same-side interior)

9)



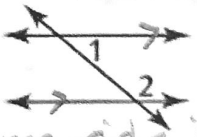
corresponding ∠s are ≅ since lines are parallel

10)



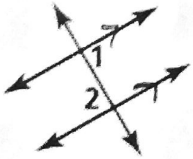
alternate interior ∠s however they are not ≅ since lines are not ∥ or

11)



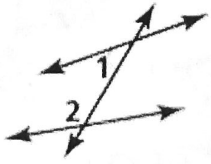
same-side interior consecutive interior are supplementary

12)



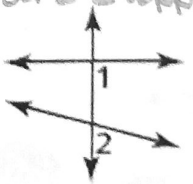
alternate interior ∠s are ≅ since lines are parallel

13)



same-side or consecutive interior ∠s, however since lines are not parallel they are not supplementary

14)

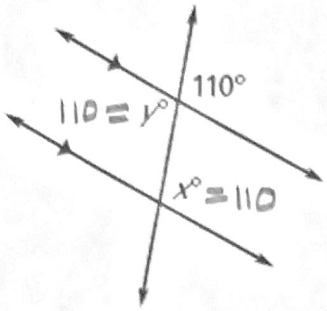


corresponding ∠s however since lines are not parallel they are not ≅

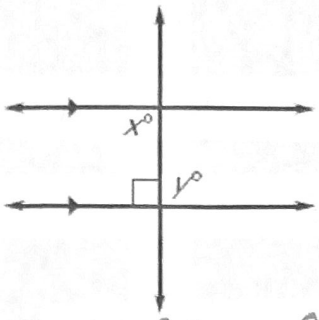
Find the values of x and y.

$80 + x - 15 = 180$
$x - 15 = 100$
$x = 115$

15)

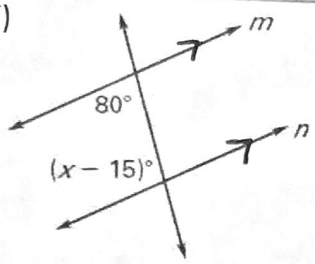


16)

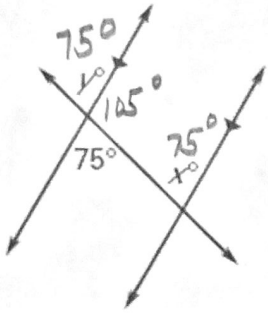


x = 90 y = 90

17)

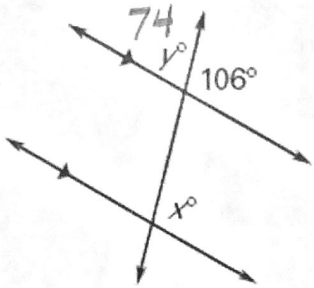


18)



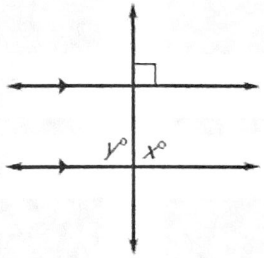
x = 75 y = 75

19)



y = 74 x = 106

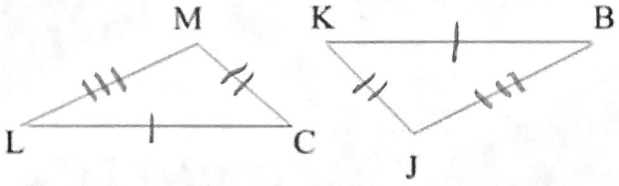
20)



x = 90 y = 90

21) $\Delta LMC \cong \Delta BJK$

Complete the congruence statements. (Name all congruent angles. Name all congruent sides.)

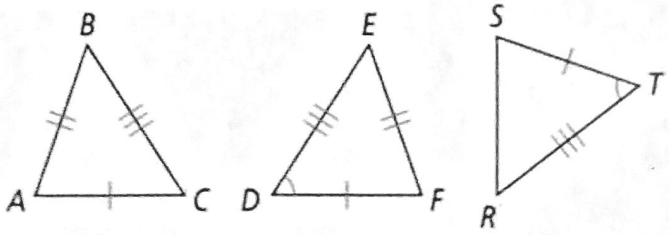


3. $\overline{LC} \cong$ BK
4. $\overline{KJ} \cong$ CM
5. $\overline{JB} \cong$ ML
6. $\angle L \cong \angle B$
7. $\angle K \cong \angle C$
8. $\angle M \cong \angle J$
9. $\Delta CML \cong \Delta KJB$
10. $\Delta KBJ \cong \Delta CLM$

22) Use the figures below to complete the following statements:

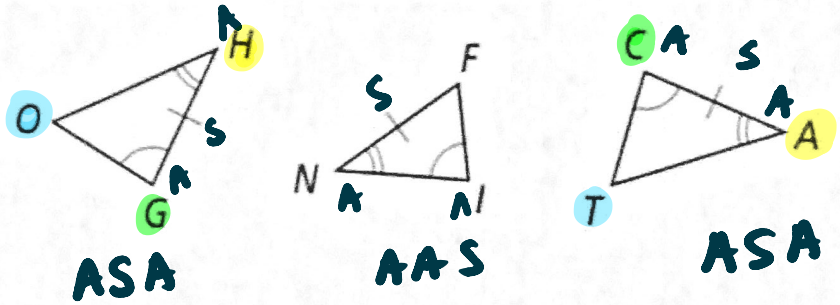
a. $\Delta DEF \cong \Delta$ TRS by SAS≅

b. $\Delta ABC \cong \Delta$ FED by SSS≅

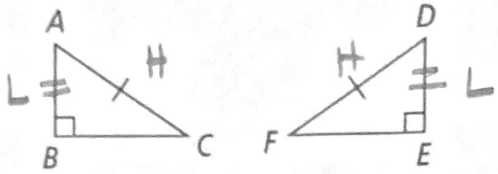


23) Which two triangles below are congruent by ASA? Write a congruence statement.

Δ GHO $\cong \Delta$ CAT by ASA≅



24) Which additional piece of information would allow you to prove that the triangles are congruent by the HL theorem?



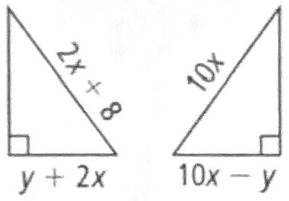
A) $m\angle DFE = 40$

B) $m\angle F = m\angle ABC$

C) $\overline{AB} \cong \overline{DE}$

D) $\overline{AC} \cong \overline{DF}$

25) For what values of x and y are the triangles shown congruent?



F) $x = 1, y = 4$

G) $x = 2, y = 4$

H) $x = 4, y = 1$

I) $x = 1, y = 3$

$y + 2(1) = 10(1) - y$

$y + 2 = 10 - y$

$2y = 8 \rightarrow y = 4$

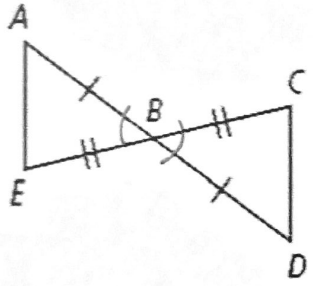
$2x + 8 = 10x$

$8 = 8x$

$x = 1$

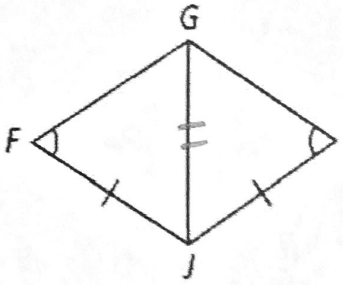
State the postulate or theorem you can use to prove each pair of triangles congruent. If the triangles cannot be proven congruent, write *not enough information.*

26)



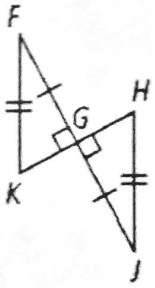
$\triangle ABC \cong \triangle DBC$ by SAS

27)



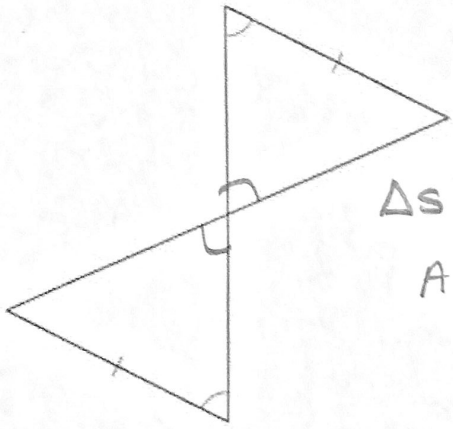
not enough information SSA does not prove $\triangle$s $\cong$

28)



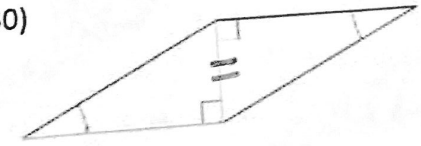
$\triangle KFG \cong \triangle HJG$ by HL

29)



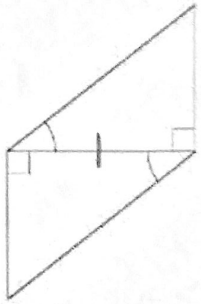
$\triangle$s $\cong$ by AAS

30)



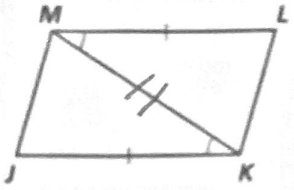
$\triangle$s $\cong$ by AAS

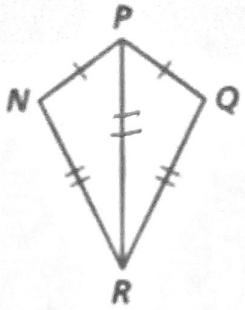
31)

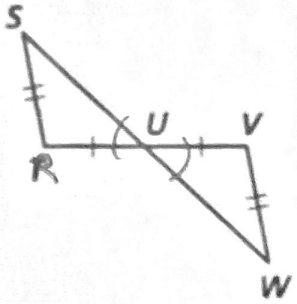


$\triangle$s $\cong$ by ASA

Determine whether the following triangles are congruent, if so complete the congruent statement.

32) 

33) 

34) 

$\Delta MJK \cong \Delta$ KLM by SAS $\quad \Delta NPR \cong \Delta$ QPR by SSS $\quad \Delta SRU \cong \Delta$_____ by _____

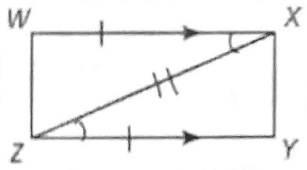
Not possible

SSA does not prove Δs $\cong$

Triangle Congruence Proofs:

35) Given: $\overline{WX} \parallel \overline{YZ}, \overline{WX} \cong \overline{YZ}$

Prove: $\Delta WXZ \cong \Delta YZX$



Statements	Reasons
S 1. $\overline{WX} \cong \overline{YZ}$	1. Given
2. $\overline{WX} \parallel \overline{YZ}$	2. Given
A 3. $\angle WXZ \cong \angle YZX$	3. Alternate interior $\angle$s are $\cong$
S 4. $\overline{ZX} \cong \overline{XZ}$	4. Reflexive Property
5. $\Delta WXZ \cong \Delta YZX$	5. SAS

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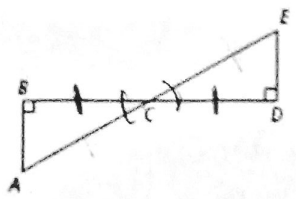
36) Given: $\angle B$ and $\angle D$ are right angles.

$\overline{AE}$ bisects $\overline{BD}$

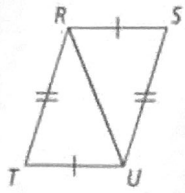
Prove: $\Delta ABC \cong \Delta EDC$



Statements	Reasons
1. $\angle B$ & $\angle D$ are right $\angle$s	1. Given
A 2. $\angle B \cong \angle D$	2. all right $\angle$s are $\cong$
3. $\overline{AE}$ bisects $\overline{BD}$	3. Given
S 4. $\overline{BC} \cong \overline{DC}$	4. Defn. segment bisector
A 5. $\angle BCA \cong \angle DCA$	5. Vertical $\angle$s are $\cong$
6. $\Delta ABC \cong \Delta EDC$	6. ASA

37) **Given:** $\overline{RS} \cong \overline{UT}$, $\overline{RT} \cong \overline{US}$

Prove: $\angle T \cong \angle S$



Subgoal prove $\Delta TRU \cong \Delta SUR$

Statements	Reasons
1. $\overline{RS} \cong \overline{UT}$	1. Given
2. $\overline{RT} \cong \overline{US}$	2. Given
3. $\overline{RU} \cong \overline{UR}$	3. Reflexive Property
4. $\Delta TRU \cong \Delta SUR$	4. SSS
5. $\angle T \cong \angle S$	5. CPCTC

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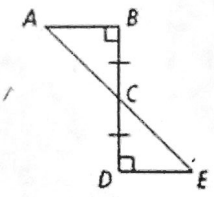
38) Given: $\overline{BD} \perp \overline{AB}$

$\overline{BC} \cong \overline{DC}$

Prove: $\angle A \cong \angle E$



Subgoal prove $\Delta ABC \cong \Delta EDC$

Statements	Reasons
1. $\overline{BD} \perp \overline{AB}$	1. Given
2. $\angle B$ & $\angle D$ are right $\angle$s	2. Defn. of $\perp$
A 3. $\angle B \cong \angle D$	3. right $\angle$s are $\cong$
S 4. $\overline{BC} \cong \overline{DC}$	4. Given
A 5. $\angle ACB \cong \angle ECD$	5. Vertical $\angle$s are $\cong$
6. $\Delta ABC \cong \Delta EDC$	6. ASA
7. $\angle E \cong \angle A$	7. CPCTC