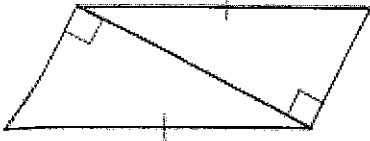


**Geometry**  
**Congruent Triangles Test Review**  
**→ Similar**

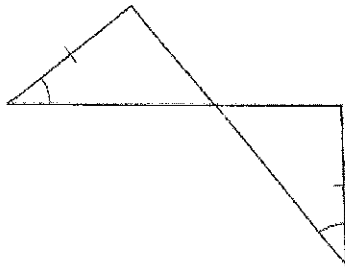
Name \_\_\_\_\_  
 Date \_\_\_\_\_ Block \_\_\_\_\_

State whether each pair of triangles is congruent by SSS, SAS, ASA, AAS, or HL; if none of these methods work, write NONE.

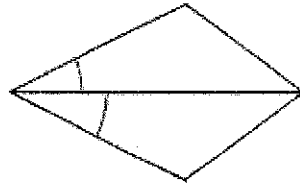
1.



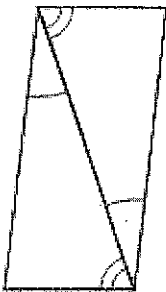
2.



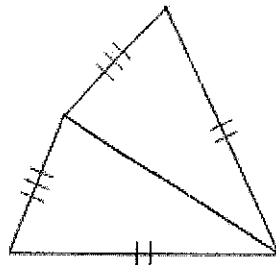
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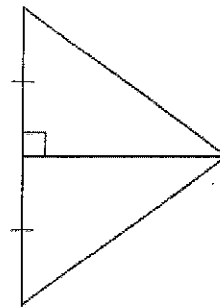
4.



5.

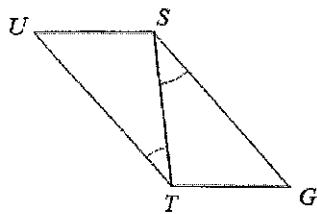


6.



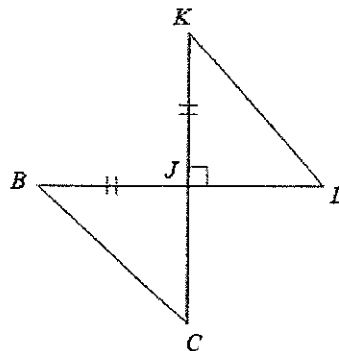
7. State what information is needed to prove the triangles are congruent using the given method and provide the triangle congruence statement.

a) ASA



$\Delta STU \cong$  \_\_\_\_\_

b) HL



$\Delta JBC \cong$  \_\_\_\_\_

8. If  $\triangle RTY \cong \triangle ASD$ , complete the following statements:

- a)  $\angle T \cong$  \_\_\_\_\_      b)  $\overline{YR} \cong$  \_\_\_\_\_      c)  $\angle SDA \cong$  \_\_\_\_\_

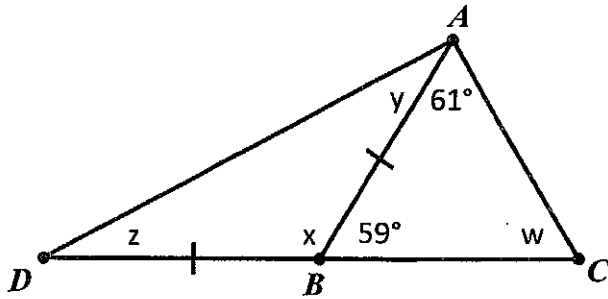
9. Given  $\triangle HKP \cong \triangle STC$ ,  $KP = 2x - 8$ , and  $TC = 3x - 20$ . What is the measure of segment  $TC$ ?

10. Given  $\triangle WSX \cong \triangle MJY$ ,  $m\angle W = 5x + 3$ , and  $m\angle M = 6x - 5$ . What is the measure of  $\angle M$ ?

12. In  $\triangle LMC$ ,  $\angle MCL = 37^\circ$ ,  $\angle MLC = 106^\circ$ ,  $\angle CML = 37^\circ$ . Classify the triangle by angles and sides.

13. In each figure below, solve for the missing variable

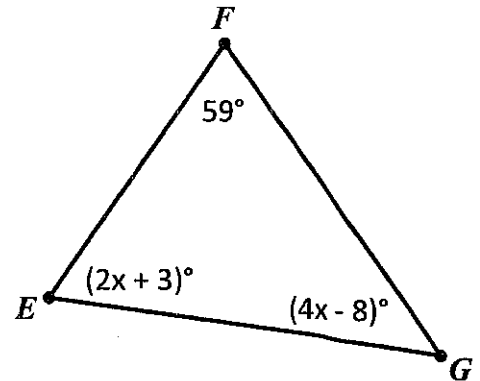
a)



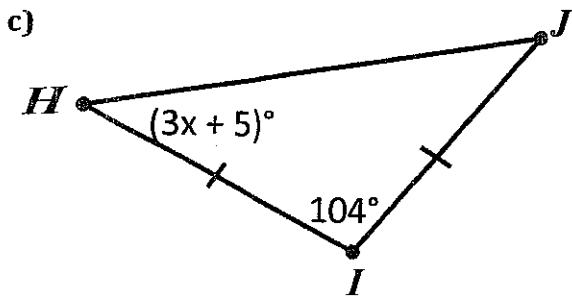
$w =$  \_\_\_\_\_  $x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_  $z =$  \_\_\_\_\_

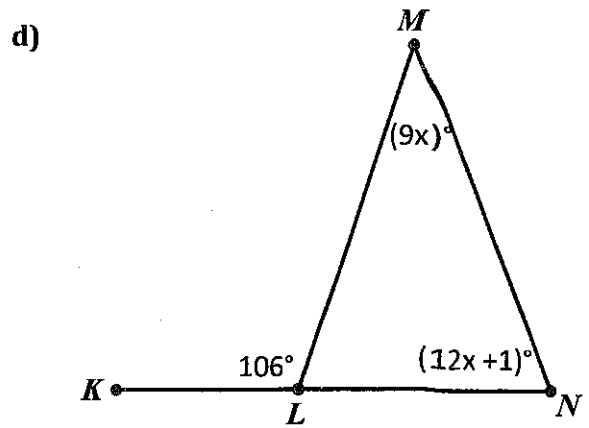
b)



$x =$  \_\_\_\_\_



$x = \underline{\hspace{2cm}}$

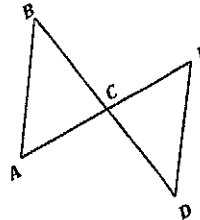


$x = \underline{\hspace{2cm}}$

Complete the following proofs. **Make sure you mark your figures!!!**

14. Given: C is the midpoint of  $\overline{AE}$   
 C is the midpoint of  $\overline{BD}$

Prove:  $\triangle ABC \cong \triangle EDC$



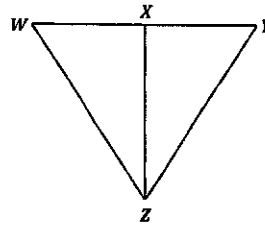
Statements	Reasons
1.	1. Given
2.	2.
3.	3.
4.	4.
5.	5.
6. $\triangle ABC \cong \triangle EDC$	6.

15.

Given:  $\angle WXZ$  and  $\angle YXZ$  are right angles

$\overline{WZ} \cong \overline{YZ}$

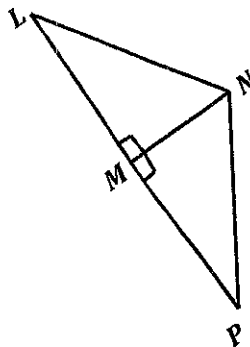
Prove:  $\angle W \cong \angle Y$



Statements	Reasons
1.	1. Given
2.	2.
3.	3.
4.	4.
5. $\triangle WXZ \cong \triangle YXZ$	5.
6. $\angle W \cong \angle Y$	6.

16. Given:  $\overline{LM} \cong \overline{MP}$   
 $\angle NML$  and  $\angle NMP$  are right angles

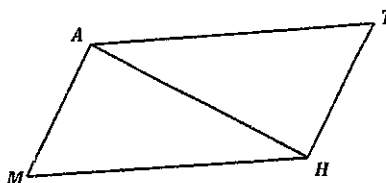
Prove:  $\triangle NML \cong \triangle NMP$



Statements	Reasons
1.	1. Given
2.	2.
3.	3.
4.	4.
5. $\triangle NML \cong \triangle NMP$	5.

17. Given:  $\overline{AT} \parallel \overline{MH}$   
 $\angle M \cong \angle T$

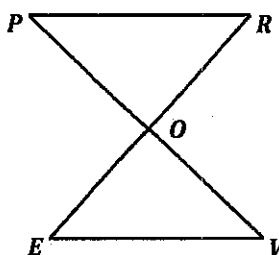
Prove:  $\overline{MA} \cong \overline{TH}$



Statements	Reasons
1.	1. Given
2.	2.
3.	3.
4.	4.
5.	5.
6. $\overline{MA} \cong \overline{TH}$	6.

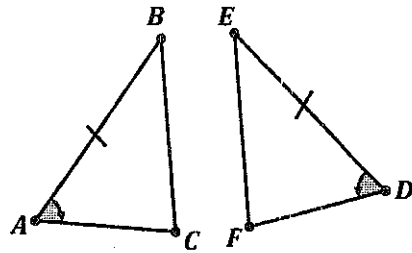
18. Given: O is the midpoint of  $\overline{PV}$   
 $\overline{PR} \parallel \overline{EV}$

Prove:  $\triangle PRO \cong \triangle VEO$



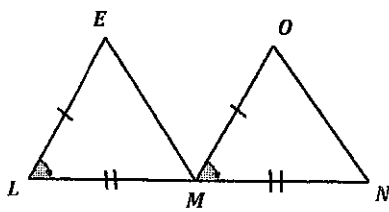
Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6. $\triangle PRO \cong \triangle VEO$	6.

19. If  $\triangle ABC \cong \triangle DEF$  by AAS, what additional piece of information needs to be marked?



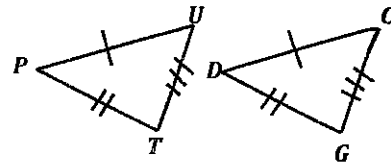
20. Given the following triangles, determine how they are congruent and complete the triangle congruence statement.

a)



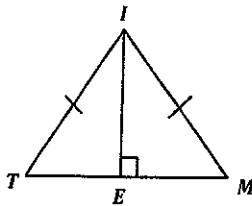
$\triangle LEM \cong$  \_\_\_\_\_ by \_\_\_\_\_

b)



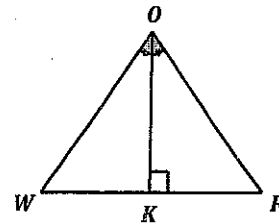
$\triangle PUT \cong$  \_\_\_\_\_ by \_\_\_\_\_

c)



$\triangle TIE \cong$  \_\_\_\_\_ by \_\_\_\_\_

d)



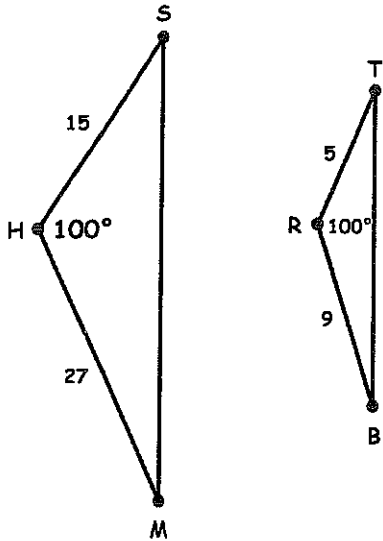
$\triangle KOW \cong$  \_\_\_\_\_ by \_\_\_\_\_

State if the triangles are similar. If so, state how you know, complete the similarity statement and give all common ratios used.

21. Circle one: Yes or No

If yes, postulate or theorem: \_\_\_\_\_

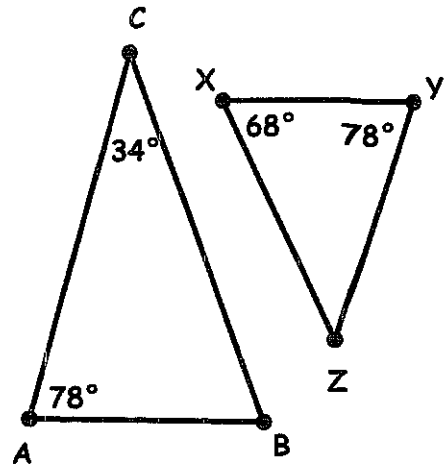
$\triangle SHM \sim \triangle$  \_\_\_\_\_



22. Circle one: Yes or No

If yes, postulate or theorem: \_\_\_\_\_

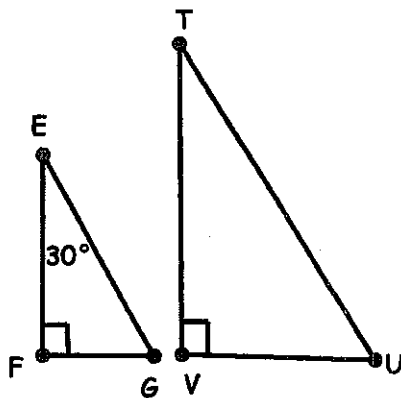
$\triangle CAB \sim \triangle$  \_\_\_\_\_



23. Circle one: Yes or No

If yes, postulate or theorem: \_\_\_\_\_

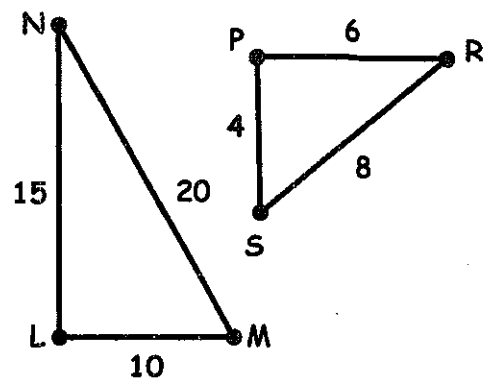
$\triangle EFG \sim \triangle$  \_\_\_\_\_



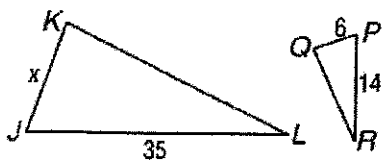
24. Circle one: Yes or No

If yes, postulate or theorem: \_\_\_\_\_

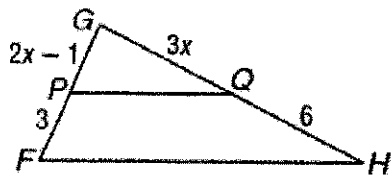
$\triangle NLM \sim \triangle$  \_\_\_\_\_



25. If  $\triangle JKL \sim \triangle PQR$ , find  $x$ .

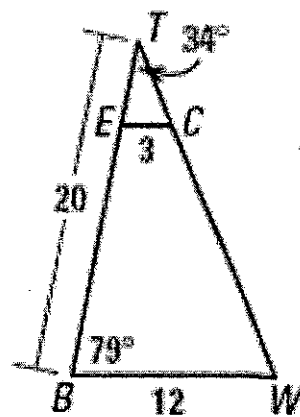


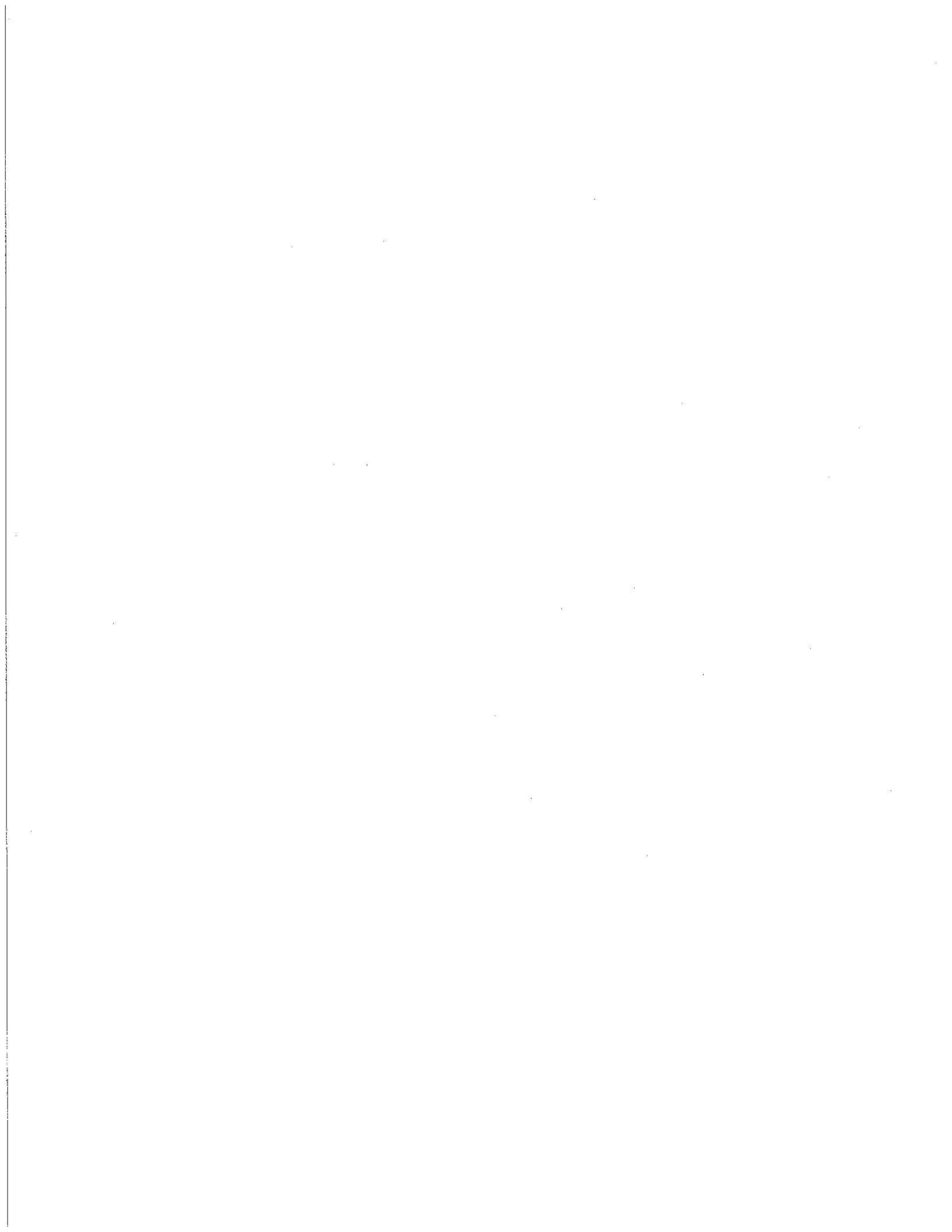
26. If  $\triangle GPQ \sim \triangle GFH$ , find  $x$ .



27. In the diagram,  $\triangle BTW \sim \triangle ETC$ .

- Find the  $m\angle TEC$ .
- Find  $ET$  and  $BE$ .





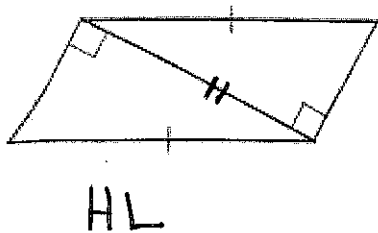


Geometry  
 Congruent Triangles Test Review  
 + Similar

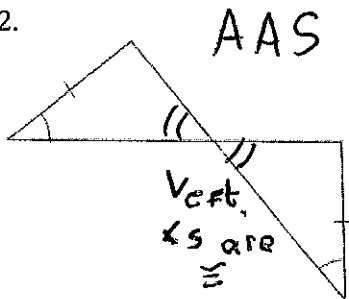
Name Key  
 Date \_\_\_\_\_ Block \_\_\_\_\_

State whether each pair of triangles is congruent by SSS, SAS, ASA, AAS, or HL; if none of these methods work, write NONE.

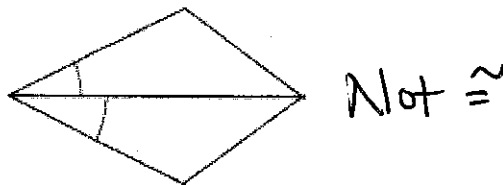
1.



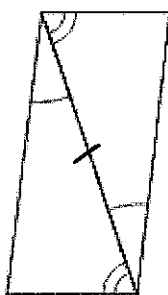
2.



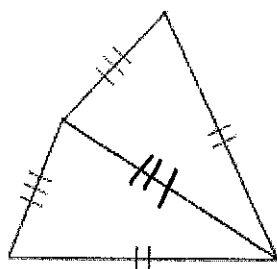
3.



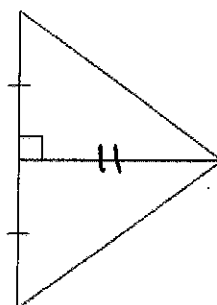
4.



5.

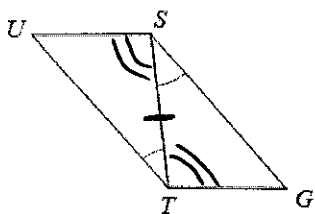


6.



7. State what information is needed to prove the triangles are congruent using the given method and provide the triangle congruence statement.

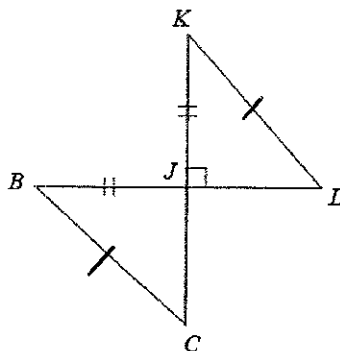
a) ASA



\* Need  $\angle UST \cong \angle GTS$

$\triangle STU \cong \triangle TSG$

b) HL



Need  $\overline{KL} \cong \overline{BC}$

$\triangle JBC \cong \triangle JKL$

8. If  $\triangle RTY \cong \triangle ASD$ , complete the following statements:

a)  $\angle T \cong \underline{\angle S}$

b)  $\overline{YR} \cong \underline{\overline{DA}}$

c)  $\angle SDA \cong \underline{\angle TYR}$

9. Given  $\triangle HKP \cong \triangle STC$ ,  $KP = 2x - 8$ , and  $TC = 3x - 20$ . What is the measure of segment  $TC$ ?

$$\begin{aligned}
 KP &= TC \\
 2x - 8 &= 3x - 20 \\
 x &= 12 \quad \text{so} \quad \boxed{TC = 16}
 \end{aligned}$$

10. Given  $\triangle WSX \cong \triangle MIY$ ,  $m\angle W = 5x + 3$ , and  $m\angle M = 6x - 5$ . What is the measure of  $\angle M$ ?

$$\boxed{x = 8}$$

$$\boxed{m\angle M = 43^\circ}$$

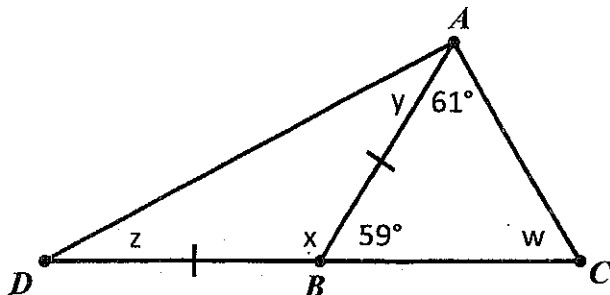
12. In  $\triangle LMC$ ,  $\angle MCL = 37^\circ$ ,  $\angle MLC = 106^\circ$ ,  $\angle CML = 37^\circ$ . Classify the triangle by angles and sides.

Isosceles

2 Congruent angles  
 $\Rightarrow$  2 Congruent sides

13. In each figure below, solve for the missing variable

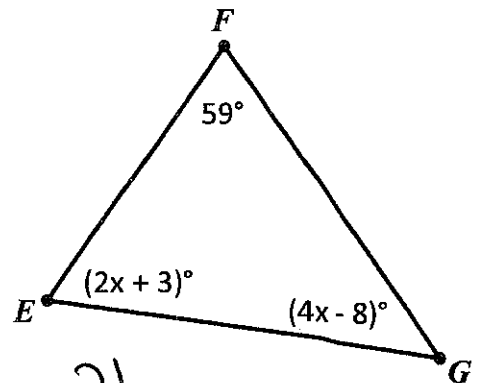
a)



$$w = \underline{60} \quad x = \underline{121}$$

$$y = \underline{29.5} \quad z = \underline{29.5}$$

b)



$$x = \underline{21}$$

$$6x + 54 = 180$$

$$6x = 126$$

$$x = 21$$

Used

$\triangle$  sum Theorem

Used

$\triangle$  sum theorem

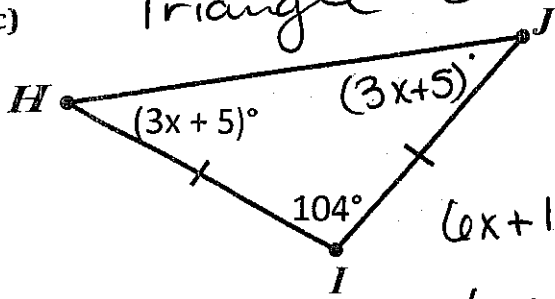
Linear Pair Rule

Base angle Theorem

# Base Angle Theorem Triangle Sum Theorem

# Exterior $\angle$ Theorem

c)



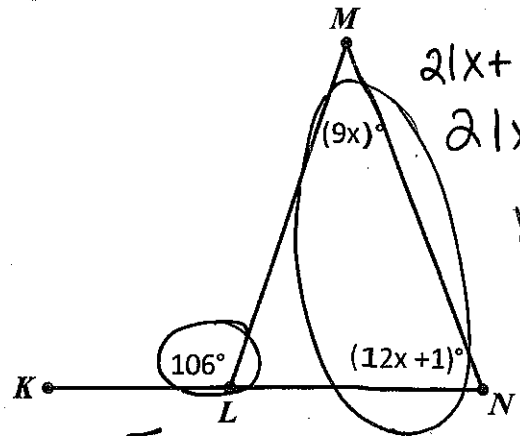
$$6x + 114 = 180$$

$$6x = 66$$

$$x = 11$$

$$x = \underline{11}$$

d)



$$2x + 1 = 106$$

$$2x = 105$$

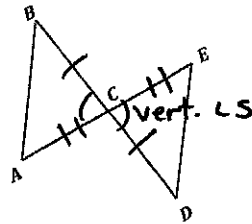
$$x = 5$$

$$x = \underline{5}$$

Complete the following proofs. **Make sure you mark your figures!!!**

14. Given: C is the midpoint of  $\overline{AE}$   
C is the midpoint of  $\overline{BD}$

Prove:  $\triangle ABC \cong \triangle EDC$



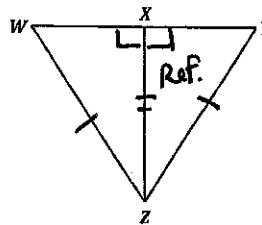
Statements	Reasons
1.	1. Given
2.	2. Given
3. $\overline{BC} \cong \overline{CD}$	3. Def. of midpoint
4. $\overline{AC} \cong \overline{CE}$	4. Def. of midpoint
5. $\angle BCA \cong \angle DCE$	5. Vert. $\angle$ s are $\cong$
6. $\triangle ABC \cong \triangle EDC$	6. SAS

15.

Given:  $\angle WXZ$  and  $\angle YXZ$  are right angles

$$\overline{WZ} \cong \overline{YZ}$$

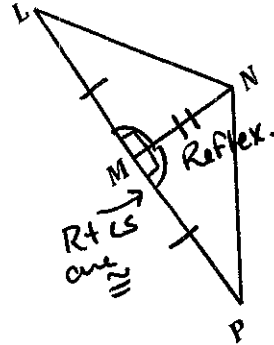
Prove:  $\angle W \cong \angle Y$



Statements	Reasons
1. $\angle WXZ$ and $\angle YXZ$ are rt. $\angle$ s.	1. Given
2. $\overline{WZ} \cong \overline{YZ}$	2. Given
3. $\overline{XZ} \cong \overline{XZ}$	3. Reflexive Prop
4. $\triangle WXZ$ and $\triangle YXZ$ are rt. $\Delta$ s	4. Def. of Right $\Delta$ .
5. $\triangle WXZ \cong \triangle YXZ$	5. HL
6. $\angle W \cong \angle Y$	6. CPCTC

16. Given:  $\overline{LM} \cong \overline{MP}$   
 $\angle NML$  and  $\angle NMP$  are right angles

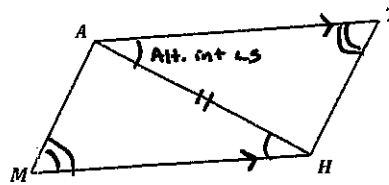
Prove:  $\triangle NML \cong \triangle NMP$



Statements	Reasons
1. $\overline{LM} \cong \overline{MP}$	1. Given
2. $\angle NML$ and $\angle NMP$ are rt. $\angle$ s	2. Given
3. $\overline{MN} \cong \overline{MN}$	3. Reflexive Property
4. $\angle NML \cong \angle NMP$	4. Right $\angle$ Congruency Theorem
5. $\triangle NML \cong \triangle NMP$	5. SAS

17. Given:  $\overline{AT} \parallel \overline{MH}$   
 $\angle M \cong \angle T$

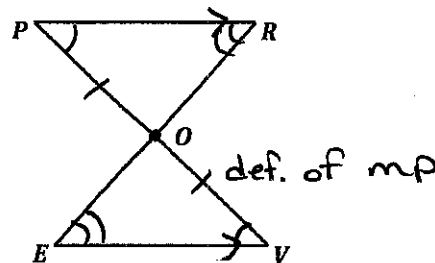
Prove:  $\overline{MA} \cong \overline{TH}$



Statements	Reasons
1. $\overline{AT} \parallel \overline{MH}$	1. Given
2. $\angle M \cong \angle T$	2. Given
3. $\angle TAH \cong \angle MHA$	3. Alt. int. $\angle$ s are $\cong$
4. $\overline{AH} \cong \overline{AH}$	4. Reflexive Prop
5. $\triangle TAH \cong \triangle MHA$	5. AAS
6. $\overline{MA} \cong \overline{TH}$	6. CPCTC

18. Given: O is the midpoint of  $\overline{PV}$   
 $\overline{PR} \parallel \overline{EV}$

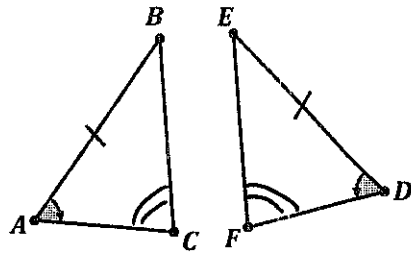
Prove:  $\triangle PRO \cong \triangle VEO$



ALSO...  
 could use  
 vertical  $\angle$ s  
 and  
 ASA

Statements	Reasons
1. O is midpoint of $\overline{PV}$	1. Given
2. $\overline{PR} \parallel \overline{EV}$	2. Given
3. $\overline{PO} \cong \overline{OV}$	3. Def. of midpoint
4. $\angle P \cong \angle V$	4. Alt. Int. $\angle$ s are $\cong$
5. $\angle R \cong \angle E$	5. Alt. Int. $\angle$ s are $\cong$
6. $\triangle PRO \cong \triangle VEO$	6. AAS

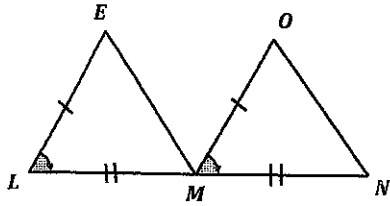
19. If  $\triangle ABC \cong \triangle DEF$  by AAS, what additional piece of information needs to be marked?



$$\angle C \cong \angle F$$

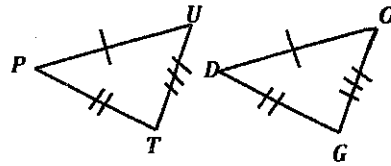
20. Given the following triangles, determine how they are congruent and complete the triangle congruence statement.

a)



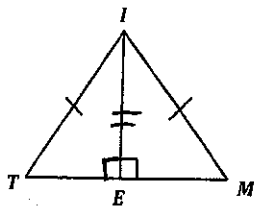
$$\triangle LEM \cong \triangle MON \text{ by } \underline{SAS}$$

b)



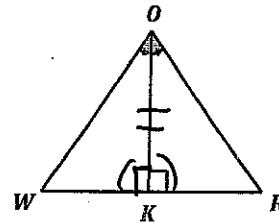
$$\triangle PUT \cong \triangle DOG \text{ by } \underline{SSS}$$

c)



$$\triangle TIE \cong \triangle MIE \text{ by } \underline{HL}$$

d)



$$\triangle KOW \cong \triangle KOR \text{ by } \underline{ASA}$$

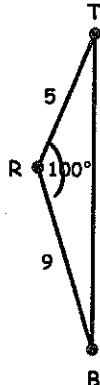
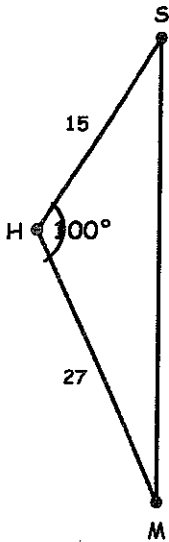
§ SSS ~ SAS ~ AA ~

State if the triangles are similar. If so, state how you know, complete the similarity statement and give all common ratios used.

21. Circle one: Yes or No

If yes, postulate or theorem: SAS ~

$\triangle SHM \sim \triangle$  TRB



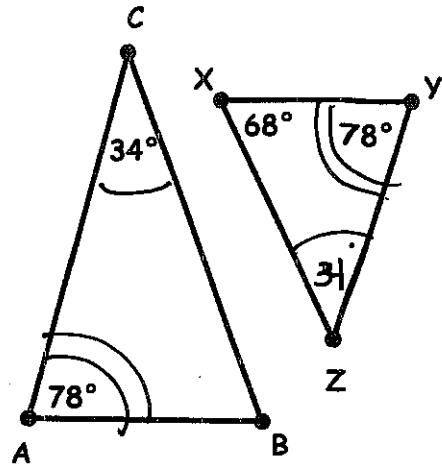
$$\frac{15}{5} = \frac{27}{9}$$

both = 3

22. Circle one: Yes or No

If yes, postulate or theorem: AA ~

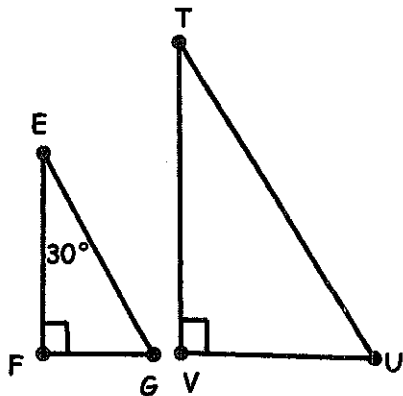
$\triangle CAB \sim \triangle$  ZYX



23. Circle one: Yes or No

If yes, postulate or theorem: \_\_\_\_\_

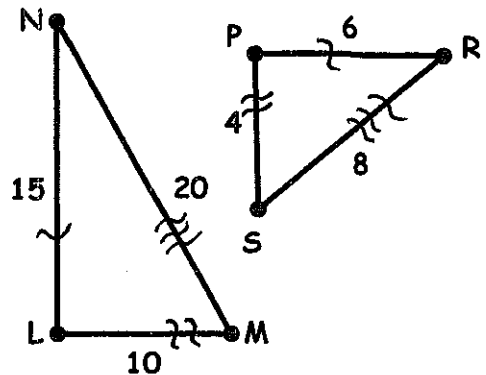
$\triangle EFG \sim \triangle$  \_\_\_\_\_



24. Circle one: Yes or No

If yes, postulate or theorem: SSS ~

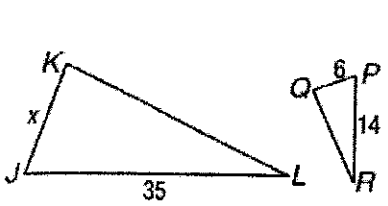
$\triangle NLM \sim \triangle$  RPS



$$\frac{10}{4} = \frac{15}{6} = \frac{20}{8}$$

2.5    2.5    2.5

25. If  $\triangle JKL \sim \triangle PQR$ , find  $x$ .

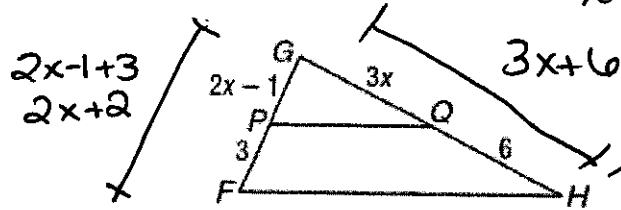


$$\frac{x}{6} = \frac{35}{14}$$

$$14x = 210$$

$$x = 15$$

26. If  $\triangle GPQ \sim \triangle GFH$ , find  $x$ .



$$\frac{2x-1+3}{2x+2}$$

$$\frac{2x-1}{2x+2} = \frac{3x}{3x+6}$$

\* requires quadratic formula

OR

$$\frac{2x-1}{3} = \frac{3x}{6}$$

$$12x-6 = 9x$$

$$-6 = -3x$$

$$\boxed{2=x}$$

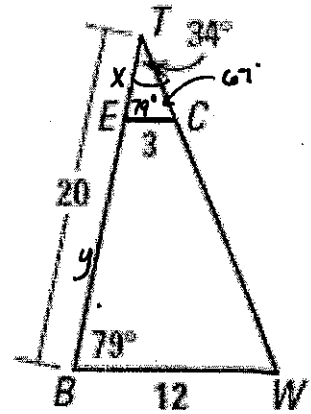
27. In the diagram,  $\triangle BTW \sim \triangle TEC$ .

a. Find the  $m\angle TEC$ .

$79^\circ$

b. Find ET and BE.

$x$     $y$



$$\frac{x}{20} = \frac{3}{12}$$

$$12x = 60$$

$$x = 5$$

$$\boxed{ET=5}$$

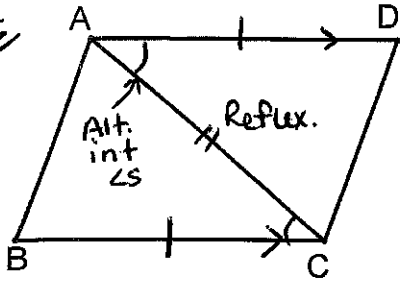
$$y = 15$$

$$BE = 15$$





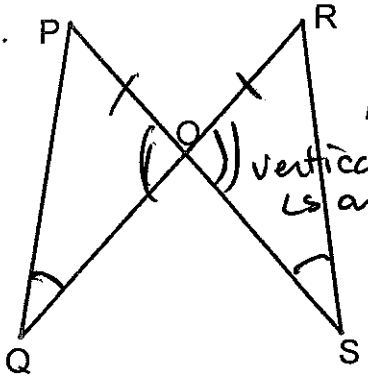
3. Medium



Given:  $\overline{AD} \cong \overline{CB}$  and  $\overline{AD} \parallel \overline{CB}$   
 Prove:  $\overline{AB} \cong \overline{DC}$

① $\overline{AD} \cong \overline{CB}$	① Given
② $\overline{AD} \parallel \overline{CB}$	② Given
③ $\angle DAC \cong \angle ACB$	③ Alt. int $\angle$ s are $\cong$
④ $\overline{AC} \cong \overline{AC}$	④ Reflex prop.
⑤ $\triangle DAC \cong \triangle BCA$	⑤ SAS
⑥ $\overline{AB} \cong \overline{DC}$	⑥ CPCTC

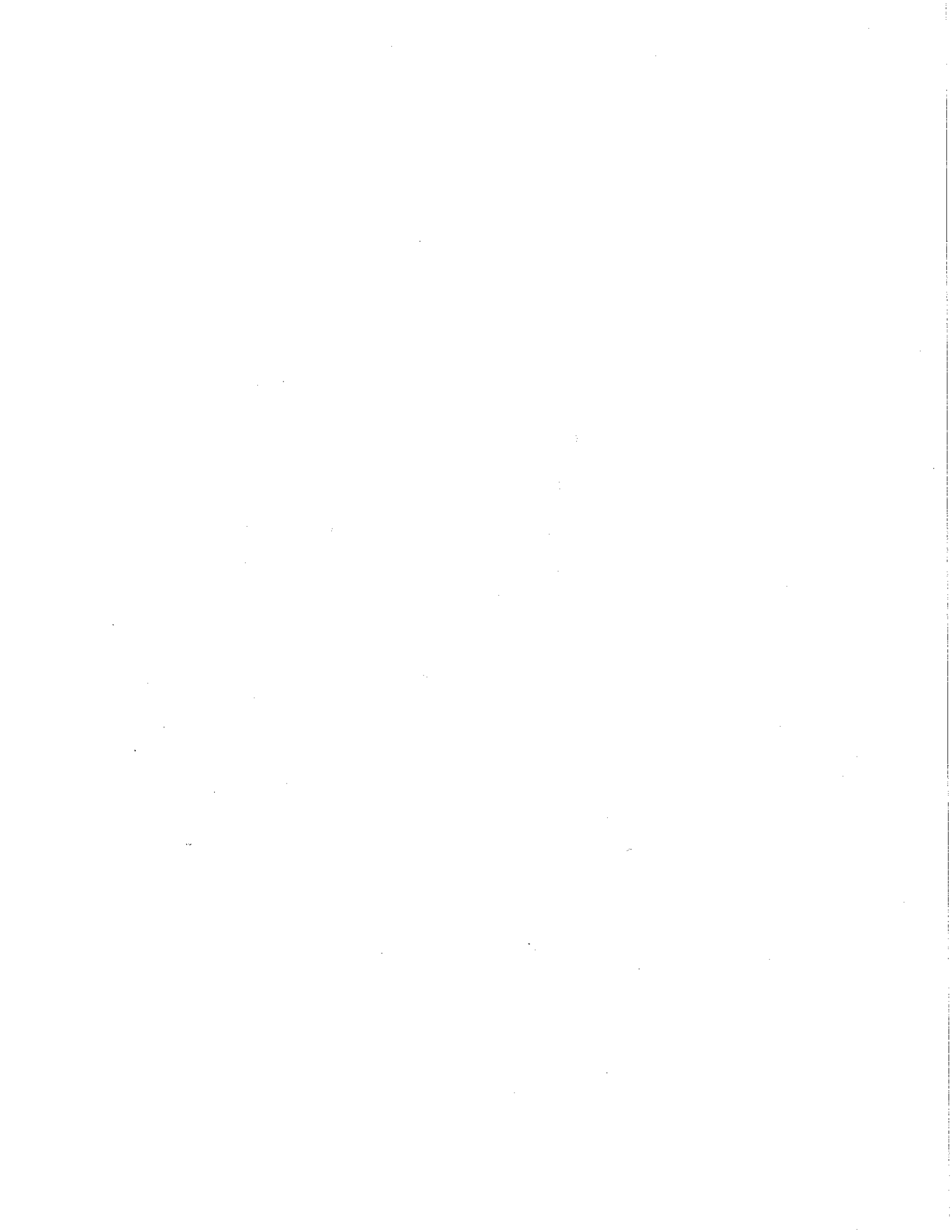
4. Easy/Medium



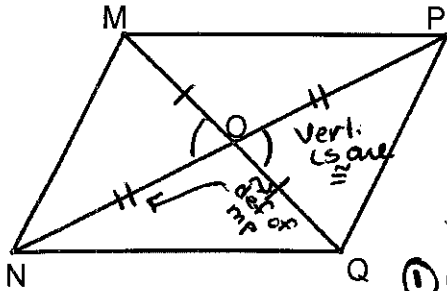
As are  $\cong$   
 AAS

Given:  $\overline{OP} \cong \overline{OR}$  and  $\angle Q \cong \angle S$   
 Prove:  $\angle P \cong \angle R$  CPCTC

$\overline{OP} \cong \overline{OR}$	Given
$\angle Q \cong \angle S$	Given
$\angle POQ \cong \angle ROS$	Vertical $\angle$ s are $\cong$
$\triangle POQ \cong \triangle ROS$	AAS
$\angle P \cong \angle R$	CPCTC



Medium  
1.



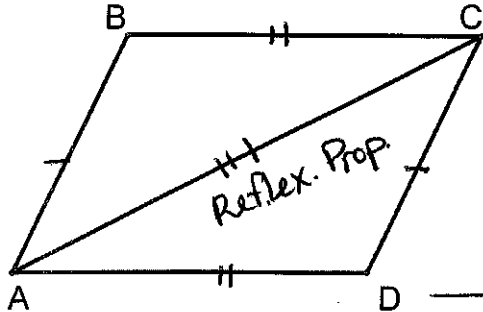
Given: O is the midpoint of  $\overline{MQ}$

O is the midpoint of  $\overline{NP}$

Prove:  $\triangle MON \cong \triangle QOP$

- |   |  |
|---|--|
| <p>① O is mp of <math>\overline{MQ}</math></p> <p>② O is mp of <math>\overline{NP}</math></p> <p>③ <math>\overline{MO} \cong \overline{OQ}</math></p> <p>④ <math>\overline{NO} \cong \overline{OP}</math></p> <p>⑤ <math>\angle MON \cong \angle POQ</math></p> <p>⑥ <math>\triangle MON \cong \triangle QOP</math></p> | <p>① Given</p> <p>② Given</p> <p>③ Def of mp</p> <p>④ Def of mp</p> <p>⑤ Vert. Angles are equal</p> <p>⑥ SAS</p> |
|---|--|

Easy  
2.



Given:  $\overline{AB} \cong \overline{DC}$  and  $\overline{BC} \cong \overline{AD}$

Prove:  $\angle ABC \cong \angle CDA$

- |   |   |
|---|---|
| <p>① <math>\overline{AB} \cong \overline{DC}</math></p> <p>② <math>\overline{BC} \cong \overline{AD}</math></p> <p>③ <math>\overline{AC} \cong \overline{AC}</math></p> <p>④ <math>\angle ABC \cong \angle CDA</math></p> | <p>① Given</p> <p>② Given</p> <p>③ Reflexive Property</p> <p>④ SSS Congruence</p> |
|---|---|

