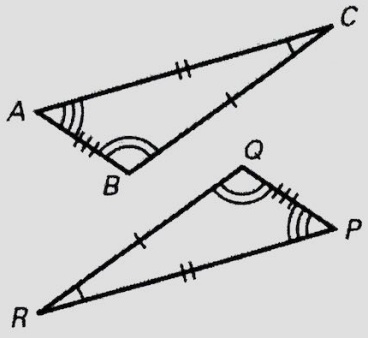
Geometry – DAY 3.17
Test Review

Name: Key
Date: _____

Triangle Congruency

1. Write a congruence statement for the triangles as well as congruency statements for all 3 sides and angles.



$\Delta ABC \cong \Delta PQR$

$\overline{AB} \cong \overline{PQ}$ $\quad \angle A \cong \angle P$

$\overline{BC} \cong \overline{QR}$ $\quad \angle B \cong \angle Q$

$\overline{AC} \cong \overline{PR}$ $\quad \angle C \cong \angle R$

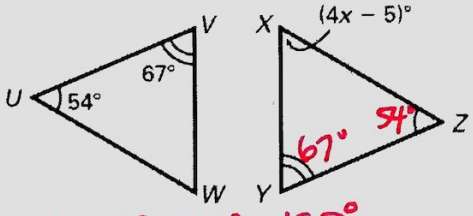
2. Complete the following statements if $\Delta BAT \cong \Delta GLV$.

a. $\overline{BA} \cong \overline{GL}$ **b.** $\angle A \cong \angle L$

c. $\overline{VG} \cong \overline{TB}$ **d.** $\Delta TBA \cong \Delta VGL$

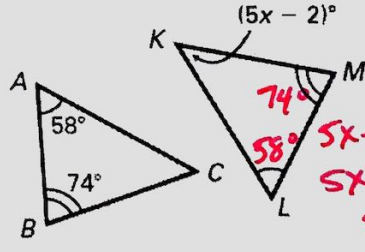
3. Find x for each pair of triangles below. **SHOW YOUR WORK.**

a.



$4x-5+67°+54° = 180°$
$4x+116 = 180$
$4x = 64$ → $x = 16$

b.



$5x-2+74+58=180$
$5x+130=180$
$5x=50$
$x=10$

$x = 10$

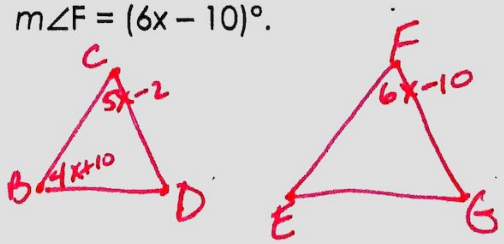
4. Given: $\Delta BCD \cong \Delta EFG$. $m\angle B = (4x + 10)°$. $m\angle C = (5x – 2)°$. $m\angle F = (6x – 10)°$.
Find… (hint: draw a picture)

a. $x =$ 8 **b.** $m\angle B =$ 42°

c. $m\angle C =$ 38° $5(8)-2$ **d.** $m\angle D =$ 100°

e. $m\angle E =$ 42° $4(8)+10$ **f.** $m\angle F =$ 38°

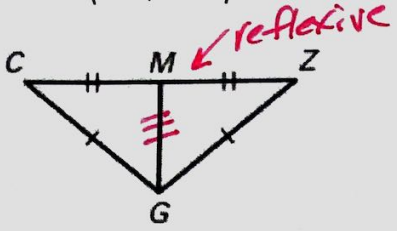
g. $m\angle G =$ 100° $180-38-42$



$5x-2 = 6x-10$
$-5x \quad -5x$
$-2 = x-10$
$+10 \quad +10$
$8 = x$

5. For each figure, **MARK** the angles and sides we know *must* be congruent, then determine if we can say the triangles are congruent. If so, complete the congruence statement and state the reason (SSS, etc.). If not, write "not enough information."

a.

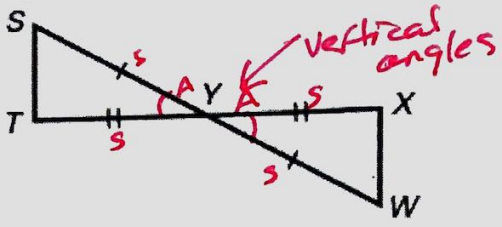


ΔMZG ≅ ΔMCG

by SSS (SSS, etc.)

or: Not Enough Information

b.

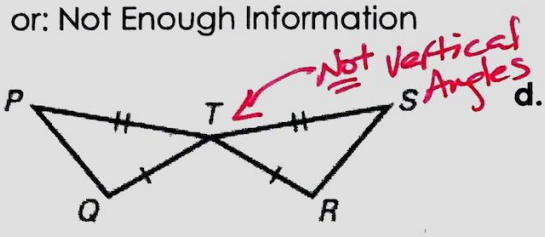


ΔSTY ≅ ΔWXY

by SAS (SSS, etc.)

or: Not Enough Information

c.



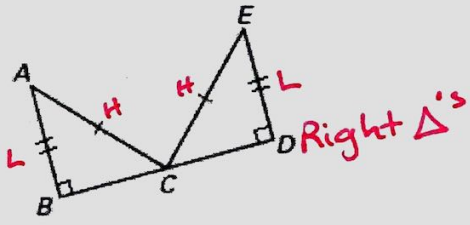
(Careful: Are these really vertical angles?) No

ΔQPT ≅ _____

by _____ (SSS, etc.)

or: Not Enough Information

d.

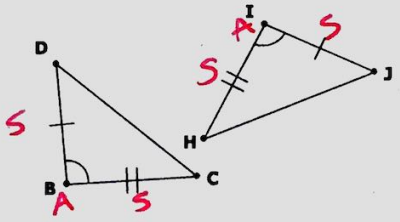


ΔCDE ≅ ΔCBA

by HL (SSS, etc.)

or: Not Enough Information

e.

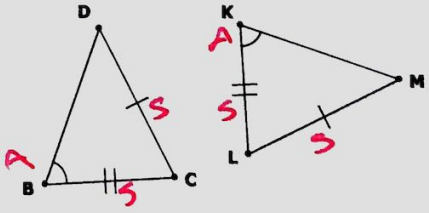


ΔBCD ≅ ΔIHJ

by SAS (SSS, etc.)

or: Not Enough Information

f.

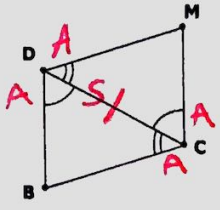


ΔBCD ≅ _____

by _____ (SSS, etc.)

or: Not Enough Information

g.

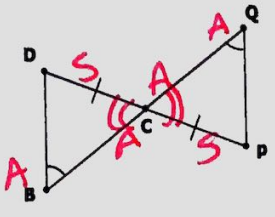


ΔBCD ≅ ΔMDC

by ASA (SSS, etc.)

or: Not Enough Information

h.



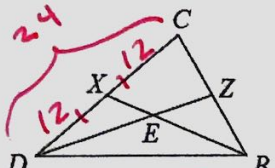
ΔBCD ≅ ΔQCP

by AAS (SSS, etc.)

or: Not Enough Information

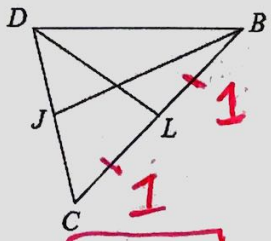
6. Medians

a. Find XD if $CD = 24$



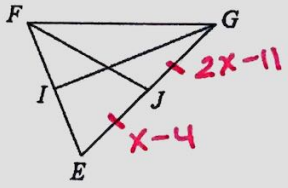
$\overline{XD} = 12$

b. Find CB if $LB = 1$



$\overline{CB} = 2$

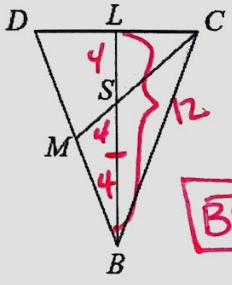
c. Find x if $JG = 2x - 11$ and $JE = x - 4$



$2x - 11 = x - 4$

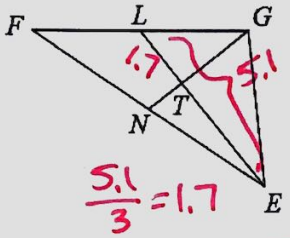
$x = 7$

d. Find BS if $BL = 12$



$\overline{BS} = 8$

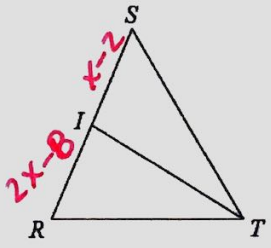
e. Find TL if $EL = 5.1$



$\frac{5.1}{3} = 1.7$

$\overline{TL} = 1.7$

f. Find x if $IR = 2x - 8$ and $IS = x - 2$

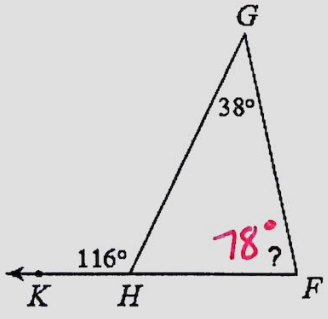


$2x - 8 = x - 2$

$x = 6$

7. Angles in Triangles

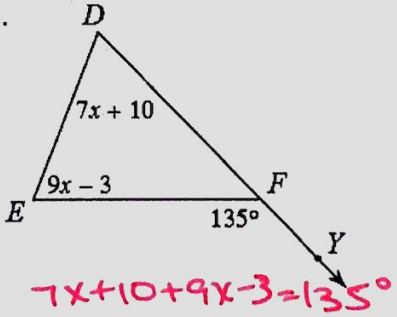
a.



$38 + x = 116$

$x = 78°$

b.



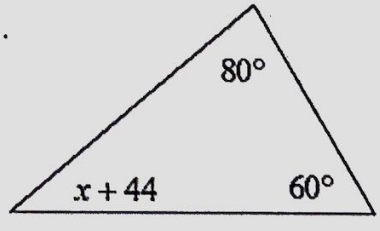
$7x + 10 + 9x - 3 = 135°$

$16x + 7 = 135°$

$16x = 128$

$x = 8$

c.

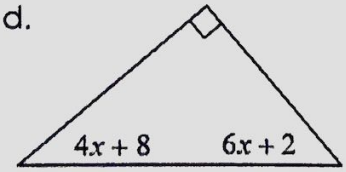


$x + 44 + 80 + 60 = 180$

$x + 184 = 180$

$x = -4$

d.



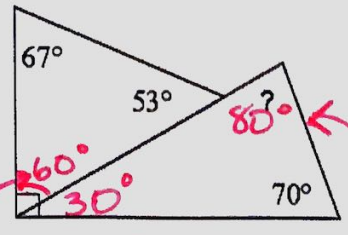
$90 + 4x + 8 + 6x + 2 = 180$

$10x + 100 = 180$

$10x = 80$

$x = 8$

e.

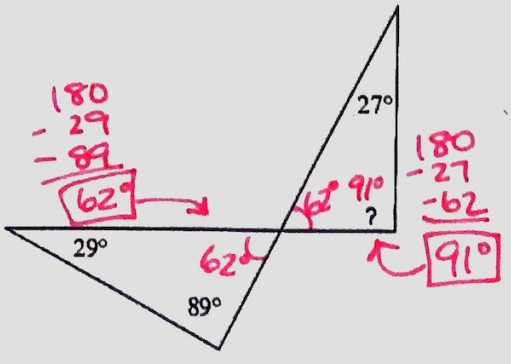


$180 - 67 - 53 = 60°$

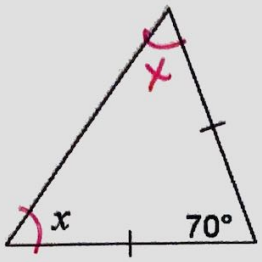
$90 - 60° = 30°$

$180 - 70 - 30 = 80°$

f.



g.



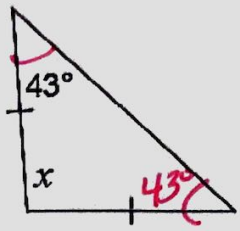
$70+x+x=180$

$2x+70=180$

$2x=110$

$\boxed{x=55°}$

h.

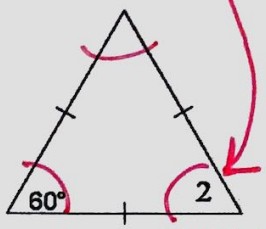


$x+43+43=180$

$x+86=180$

$\boxed{x=94°}$

i. $m\angle 2 = 7x+4$

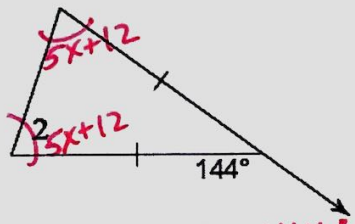


$60=7x+4$

$56=7x$

$\boxed{x=8}$

j. $m\angle 2 = 5x+12$



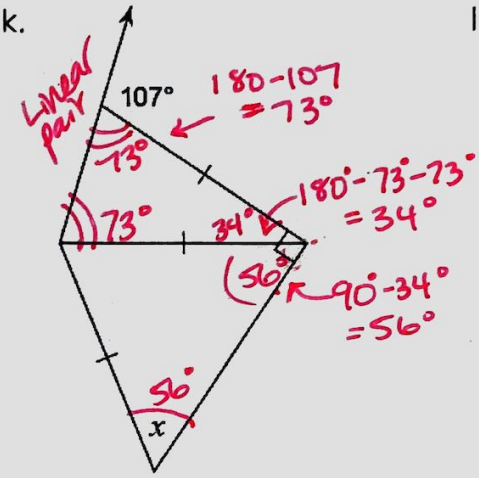
$5x+12+5x+12=144°$

$10x+24=144$

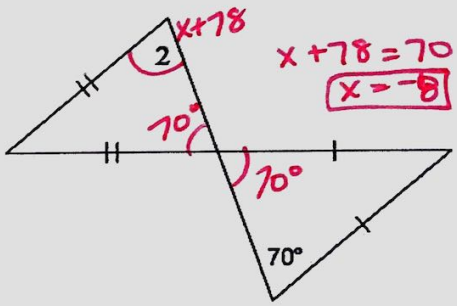
$10x=120$

$\boxed{x=12}$

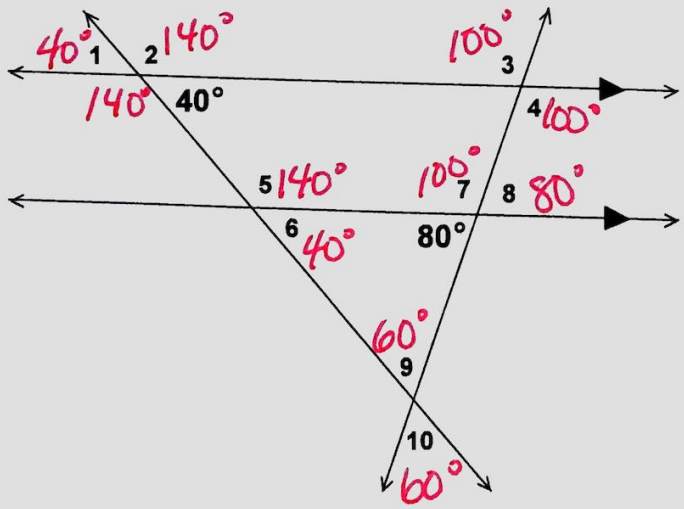
k.



l. $m\angle 2 = x+78$



8. Use the diagram below to find each angle measure.



1. 40°	2. 140°
3. 100°	4. 100°
5. 140°	6. 40°
7. 100°	8. 80°
9. 60°	10. 60°

9. List the five theorems we can use to prove triangles congruent. (theorems…sss, etc.)

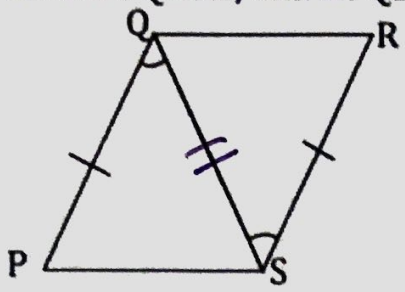
SSS, SAS, ASA, AAS, HL

10. List the two ways we CANNOT use to prove triangles are congruent.

AAA + SSA

11. Write a **2-column** proof with the following information.

Given: $\overline{PQ} \cong \overline{RS}$, and $\angle PQS \cong \angle RSQ$

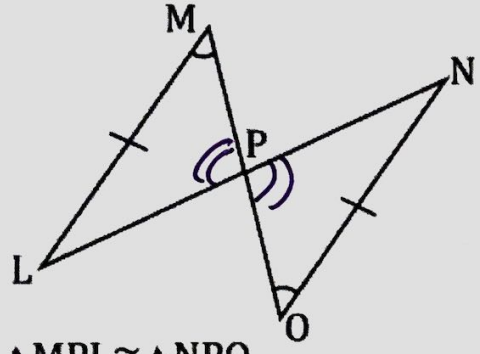


Prove: $\Delta PQS \cong \Delta RSQ$

Statements	Reasons
1. $\overline{PQ} \cong \overline{RS}$	Given
2. $\angle PQS \cong \angle RSQ$	Given
3. $\overline{QS} \cong \overline{QS}$	Reflexive Property
4. $\Delta PQS \cong \Delta RSQ$	SAS

12. Write a **2-column** proof with the following information.

Given: $\overline{LM} \cong \overline{NO}$, and $\angle M \cong \angle O$

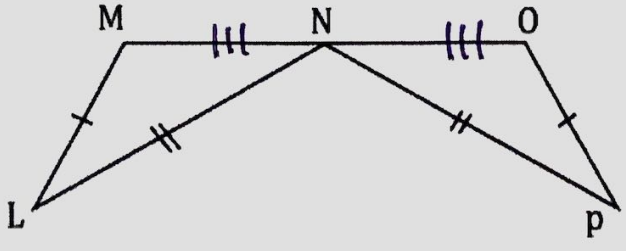


Prove: $\Delta MPL \cong \Delta NPO$

Statements	Reasons
1. $\overline{LM} \cong \overline{NO}$	Given
2. $\angle M \cong \angle O$	Given
3. $\angle MPL \cong \angle OPN$	Vertical Angles
4. $\Delta MPL \cong \Delta NPO$	AAS

13. Write a proof with the following information ☺

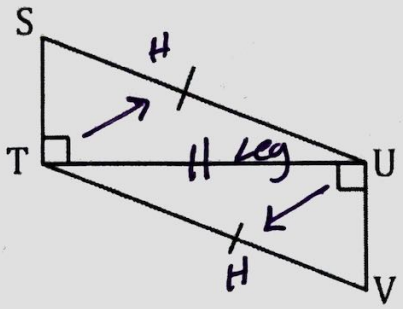
Given: N is the midpoint of $\overline{MO}$, $\overline{LM} \cong \overline{OP}$, and $\overline{LN} \cong \overline{PN}$



Prove: $\Delta LMN \cong \Delta PON$

Statements	Reasons
1. N is the midpoint of $\overline{MO}$	Given
2. $\overline{LM} \cong \overline{OP}$	Given
3. $\overline{LN} \cong \overline{PN}$	Given
4. $\Delta LMN \cong \Delta PON$	SSS

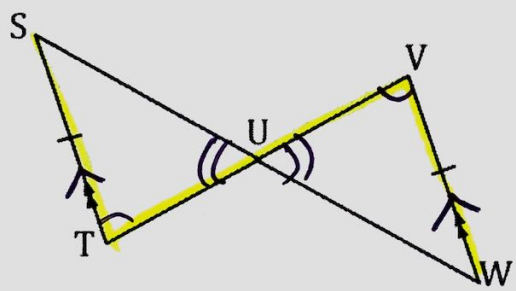
14. Given: $\overline{SU} \cong \overline{VT}$



Prove: $\overline{ST} \cong \overline{UV}$

Statements	Reasons
1. $\overline{SU} \cong \overline{VT}$	1. Given
2. $\angle STU \cong \angle VUT$	2. All right angles are $\cong$
3. $TU \cong TU$	3. ~~HL~~ Reflexive Property
4. $\Delta STU \cong \Delta VUT$	4. ~~CPC~~TC HL
5. $\overline{ST} \cong \overline{UV}$	5. CPCTC

15. Given: $\overline{ST} \| \overline{WV}$, and $\overline{ST} \cong \overline{VW}$



Prove: $\overline{SU} \cong \overline{WU}$

Statements	Reasons
1. $\overline{ST} \parallel \overline{WV}$	1. Given
2. $\overline{ST} \cong \overline{VW}$	2. Given
3. $\angle STV \cong \angle WVU$	3. Alternate Interior
4. $\angle SUT \cong \angle WUV$	4. Vertical Angles
5. $\Delta SUT \cong \Delta WUV$	5. AAS
6. $\overline{SU} \cong \overline{WU}$	6. CPCTC

*****REMEMBER...this is NOT your only study guide!**
Please study your quiz, notes, and homework!***