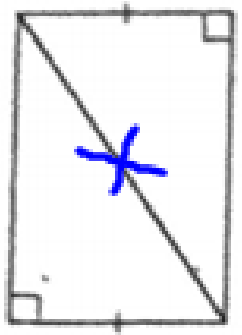
GEOMETRY

Name: _____

4.1-4.6 Review

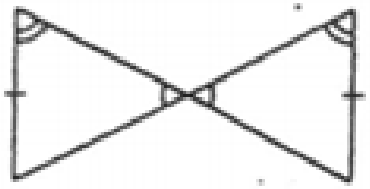
Decide which method, SAS, ASA, AAS, or HL, can be used to prove the triangles are congruent.

1.



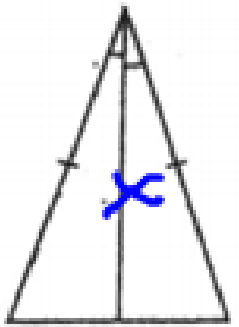
HL

2.



AAS

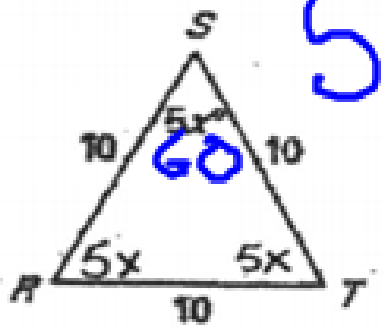
3.



SAS

In 12-16, find the unknown measure. (x & y) Find sides and angles.

12.

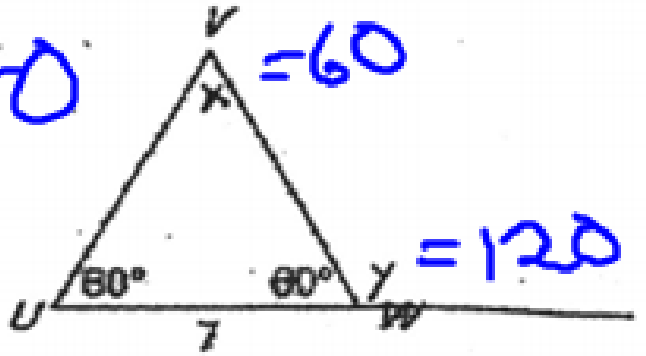


$5x+5x+5x=180$

$15x=180$

$x=12$

13.



$y+y+30=180$

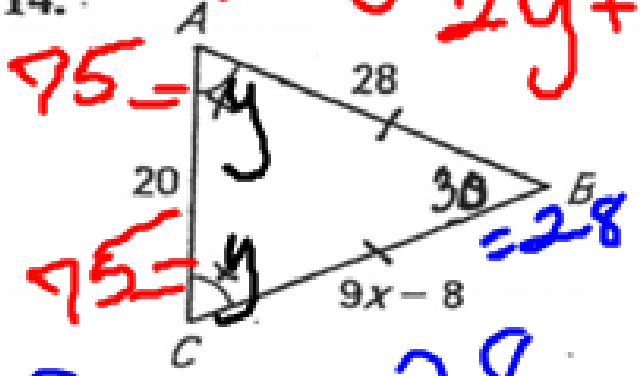
$2y+30=180$

$y=120$

$4x+3=15$

$x=3$

14.



$75=y$

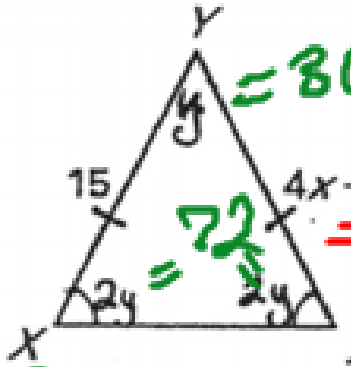
$75=y$

$y=28$

$9x-8=28$

$x=4$

15.



$y=86$

$4x+3=15$

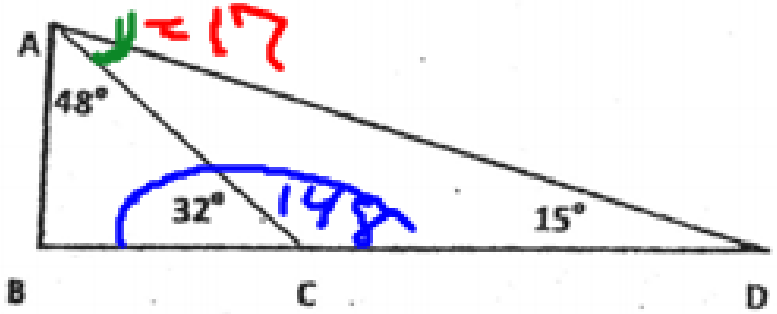
$2y=72$

$2y+2y+y=180$

$5y=180$

$y=36$

5. Find $m\angle DAC$.

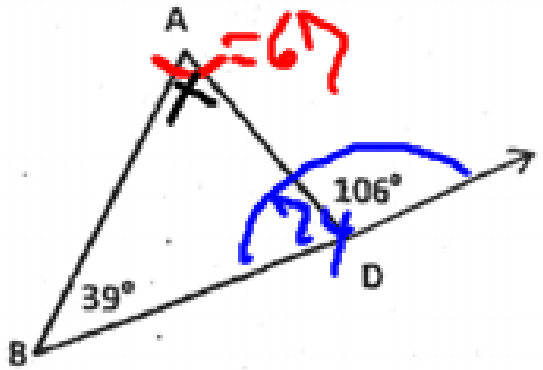


$180 - 32 = 148$

$180 - (148 + 15)$

$= 17$

6. Find $m\angle BAD$.



$180 - 106 = 74$

$180 - (74 + 39) = 67$

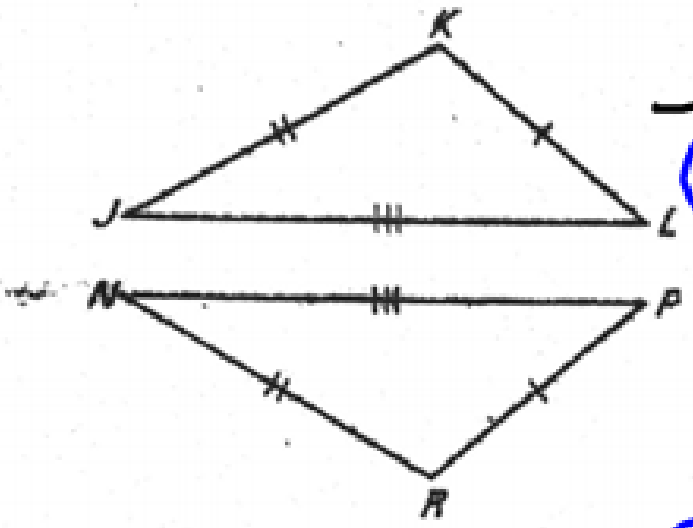
$39 + x = 106$

$-39 \quad -39$

$x = 67$

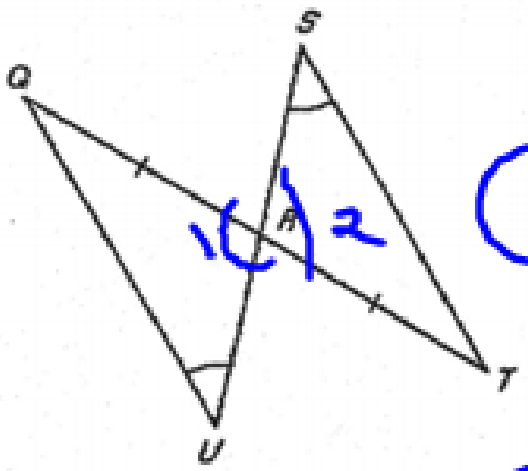
Use the diagram to write a proof.

1. **PROVE:** $\measuredangle J \cong \measuredangle N$



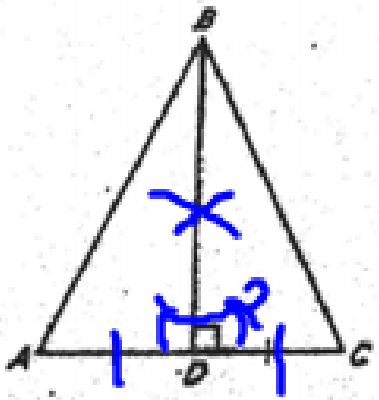
S	R
① $\overline{JL} \cong \overline{NP}$, $\overline{NR} \cong \overline{JK}$, $\overline{KL} \cong \overline{RP}$	① Given
② $\triangle NRP \cong \triangle JKL$	② SSS $\cong$ SSS
③ $\measuredangle J \cong \measuredangle N$	③ CPCTC

2. PROVE: $\overline{ST} \cong \overline{UQ}$



S	R
① $\angle S \cong \angle U$, $\overline{QR} \cong \overline{TR}$	① Given
② $\angle 1$ and $\angle 2$ are vertical angles	② def. of v.$\angle$'s
③ $\angle 1 \cong \angle 2$	③ b/c all v.$\angle$'s are $\cong$
④ $\triangle QRU \cong \triangle SRT$	④ AAS $\cong$ AAS
⑤ $\overline{ST} \cong \overline{UQ}$	⑥ CPCTC

3. **PROVE:** $\measuredangle ABD \cong \measuredangle CBD$



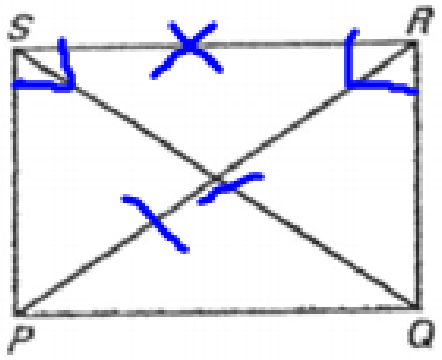
S	R
① $\overline{AD} \cong \overline{DC}$	① Given
$\overline{BD} \perp \overline{AC}$	
② $\overline{BD} \cong \overline{BD}$	② Reflexive property.
③ $\measuredangle 1$ & $\measuredangle 2$ are r. angles	③ $\perp$ lines form right $\measuredangle$s
④ $\measuredangle 1 \cong \measuredangle 2$	④ Vertical angle are $\cong$
⑤ $\triangle ADC \cong \triangle CDB$	⑤ SAS $\cong$ SAS
⑥ $\measuredangle ABD \cong \measuredangle CBD$	⑥ CPCTC

9.

Proof Complete the proof.

GIVEN: $\overline{QS} \cong \overline{PR}$, $\overline{PS} \perp \overline{RS}$, $\overline{QR} \perp \overline{RS}$

PROVE: $\triangle PRS \cong \triangle QSR$



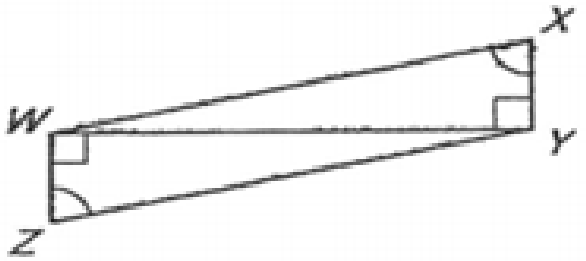
Statements	Reasons
1. $\overline{QS} \cong \overline{PR}$	1. Given
2. $\overline{PS} \perp \overline{RS}$, $\overline{QR} \perp \overline{RS}$	2. Given
3. $\measuredangle S$ and $\measuredangle R$ are right angles.	3. ? ⊥ lines form r. angles.
4. ? $\measuredangle S \cong \measuredangle R$	4. Definition of a right triangle
5. $\overline{RS} \cong \overline{SR}$	5. ? Reflexive
6. $\triangle PRS \cong \triangle QSR$	6. ? SAS ≅ SAS

10.

Proof Complete the proof.

GIVEN: $\angle XYW \cong \angle ZWY$, $\angle WXY \cong \angle YZW$

PROVE: $\overline{WX} \parallel \overline{YZ}$, $\overline{XY} \parallel \overline{WZ}$ $\triangle XWY \cong \triangle ZYW$



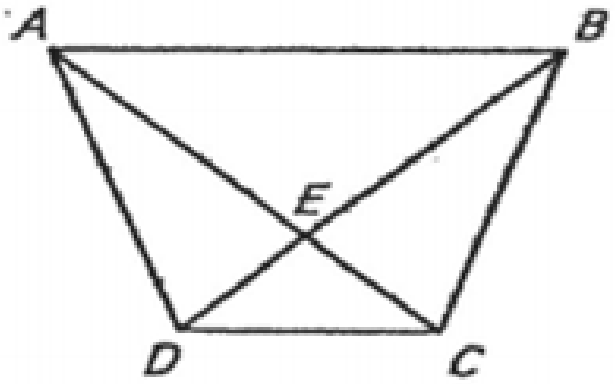
Statements	Reasons
1. $\angle XYW \cong \angle ZWY$	1. ? Given
2. $\angle WXY \cong \angle YZW$	2. ? Given
3. $\overline{WY} \cong \overline{WY}$	3. ? Reflexive
4. $\triangle XYW \cong \triangle ZWY$	4. ? AAS $\cong$ AAS
5. $\angle XWY \cong \angle ZYW$	5. ? CPCTC

11.

Proof Complete the proof.

GIVEN: $\overline{DE} \cong \overline{CE}$, $\angle ADE \cong \angle BCE$

PROVE: $\angle DAE \cong \angle CBE$



Statements	Reasons
1. $\overline{DE} \cong \overline{CE}$	1. ? Given
2. $\angle ADE \cong \angle BCE$	2. ? Given
3. $\angle AED \cong \angle BEC$	3. ? Reflexive
4. $\triangle AED \cong \triangle BEC$	4. ? AAS $\cong$ AAS
5. $\angle DAE \cong \angle CBE$	5. ? CPCTC