Geometry

KEY

Name _____

Per. _____ Date _____

(CPCTC) Worksheet

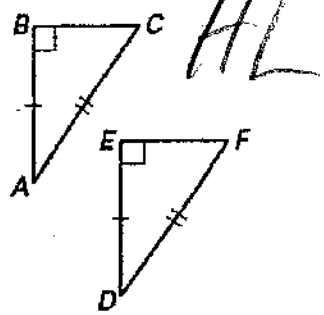
1. What does CPCTC stand for? Corresponding parts of Congruent Triangles are Congruent

2. What must you show in your prove BEFORE using CPCTC? Two △s are Congruent using thms. SSS, SAS, ASA, AAS, HL

3. What do you use CPCTC for in a proof? Angle/side not given as congruent.

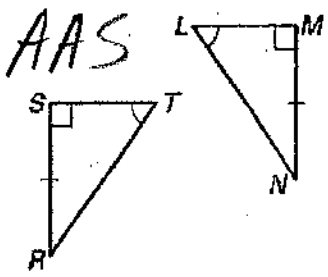
Tell how the triangles are congruent (SSS, SAS, ASA, AAS, or HL) if you want to state the given segments or angles congruent. BE CAREFUL....YOU DON'T USE THOSE GIVEN SEGMENTS OR ANGLES TO HELP GET YOUR ANSWER!!!

5. $\angle C \cong \angle F$



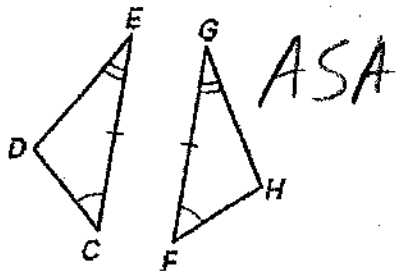
HL

6. $\overline{RT} \cong \overline{LN}$



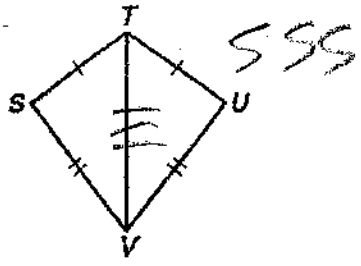
AAS

7. $\angle D \cong \angle H$



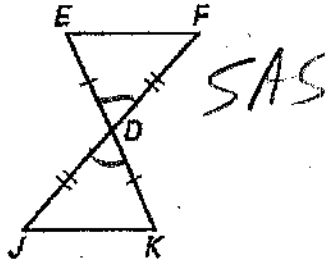
ASA

8. $\angle STV \cong \angle UTV$



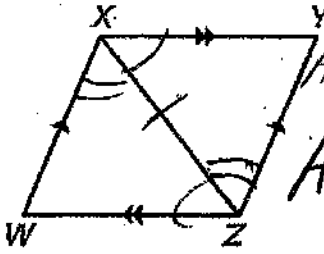
SSS

9. $\overline{EF} \cong \overline{KJ}$



SAS

10. $\overline{XY} \cong \overline{ZW}$ Opposite sides ||



Alt. Int ∠s

ASA

Match each statement to its correct congruency method at the right.

HL 11. Right triangles that have a pair of hypotenuses and a pair of legs congruent.

SAS 12. Triangles that have 2 pairs of sides congruent and 1 pair of included angles congruent.

AAS 13. Triangles that have 2 pairs of angles congruent and 1 pair of non-included sides congruent.

SSS 14. Triangles that have 3 pairs of sides congruent.

ASA 15. Triangles that have 2 pairs of angles congruent and 1 pair of included sides congruent.

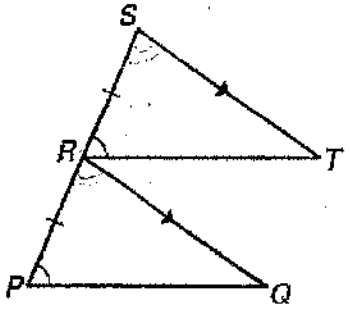
A. SSS
B. SAS
C. ASA
D. AAS
E. HL

KEY

Complete each proof.

16. Given: $\overline{ST} \parallel \overline{RQ}$, $\overline{SR} \cong \overline{RP}$, $\angle SRT \cong \angle RPQ$

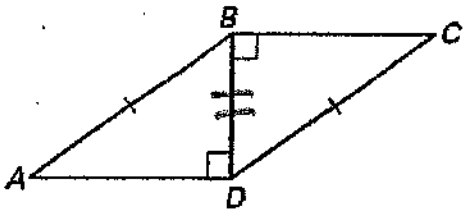
Prove: $\overline{RT} \cong \overline{PQ}$



Statements	Reasons
1. $\overline{ST} \parallel \overline{RQ}$, $\overline{SR} \cong \overline{RP}$, $\angle SRT \cong \angle RPQ$	1. Given
2. $\angle RST \cong \angle PRQ$	2. Corresponding $\angle$s
3. $\Delta RST \cong \Delta PRQ$	3. ASA
4. $\overline{RT} \cong \overline{PQ}$	4. CPCTC

17. Given: $\overline{AB} \cong \overline{CD}$, $\angle ADB$ *and* $\angle DBC$ are right angles

Prove: $\angle ABD \cong \angle CDB$



Statements	Reasons
1. $\overline{AB} \cong \overline{CD}$, $\angle ADB \cong \angle DBC = 90°$	1. Given
2. $\overline{BD} \cong \overline{BD}$	2. Reflexive
3. $\Delta ABD \cong \Delta CDB$	3. HL
4. $\angle ABD \cong \angle CDB$	4. CPCTC

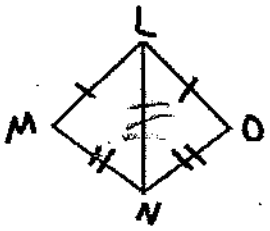
Your Turn !!

Analytic Geometry — **More Practice with Proving Triangles**

Name: KEY Date: _____

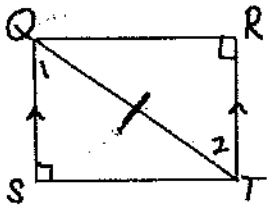
Matching: Use the choices listed at the bottom in the box for problems #1 – 4

Problem 1:



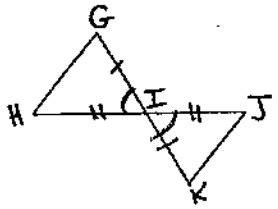
Statement	Reason
1. $\overline{LM} \cong \overline{LO}$	1. Given
2. $\overline{MN} \cong \overline{ON}$	2. Given
3. $\overline{LN} \cong \overline{LN}$	3. Reflexive
4. $\Delta LMN \cong \Delta LON$	4. SSS

Problem 2:



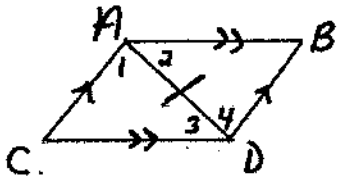
Statement	Reason
1. $\overline{QS} \parallel \overline{RT}$	1. Given
2. $\angle R \cong \angle S$	2. Given
3. $\angle 1 \cong \angle 2$	3. Alt Interior Ls
4. $\overline{QT} \cong \overline{QT}$	4. Reflexive
5. $\Delta QST \cong \Delta TRQ$	5. ASA

Problem 3:



Statement	Reason
1. $\overline{GI} \cong \overline{KI}$	1. Given
2. $\overline{HI} \cong \overline{JI}$	2. Given
3. $\angle GIH \cong \angle KIJ$	3. Vertical Ls
4. $\Delta GIH \cong \Delta KIJ$	4. SAS

Problem 4:



Statement	Reason
1. $\overline{AC} \parallel \overline{BD}, \overline{AB} \parallel \overline{CD}$	1. Given
2. $\angle 1 \cong \angle 4, \angle 2 \cong \angle 3$	2. Alt Interior Ls
3. $\overline{AD} \cong \overline{AD}$	3. Reflexive
4. $\Delta ADC \cong \Delta DAB$	4. ASA

Choices for problems #1 – 4 (some will be used more than once):

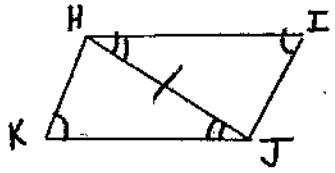
AAS
ASA
Alternate Interior Angles are ≅
Reflexive Property
SAS
SSS
Vertical Angles are ≅

KEY

Analytic Geometry **More Practice with Proving Triangles**

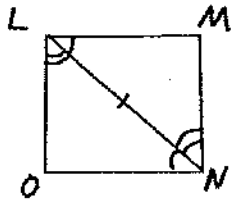
Fill in the blank proofs:

Problem 5:



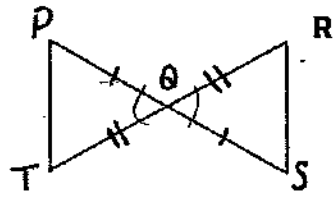
Statement	Reason
1. $\angle I \cong \angle K$	1. Given
2. $\angle IHJ \cong \angle KJH$	2. Given
3. $\overline{HJ} \cong \overline{HJ}$	3. Reflexive
4. $\Delta HJK \cong \Delta JHI$	4. ASA

Problem 6:



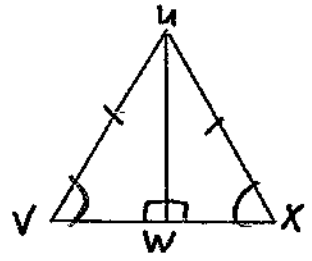
Statement	Reason
1. $\angle MLN \cong \angle ONL$	1. Given
2. $\angle OLN \cong \angle$ ____	2. Given
3. $\overline{LN} \cong \overline{LN}$	3. Reflexive Property
4. $\Delta LNO \cong \Delta NLM$	4. ASA

Problem 7:



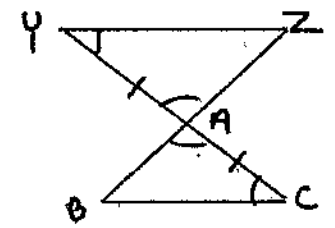
Statement	Reason
1. $\overline{PQ} \cong \overline{QS}$	1. Given
2. $\overline{TQ} \cong \overline{QR}$	2. Given
3. $\angle PQT \cong \angle RQS$	3. Vertical $\angle$s $\cong$
4. $\Delta PQT \cong \Delta SQR$	4. SAS

Problem 8:



Statement	Reason
1. $\overline{UV} \cong \overline{UX}$	1. Given
2. $\angle VWU \cong \angle XWU$	2. Given
3. $\overline{UW} \cong \overline{UW}$	3. Reflexive Property
4. $\angle V \cong \angle X$	4. Base $\angle$ Theorem
5. $\Delta UWV \cong \Delta UWX$	5.. AAS

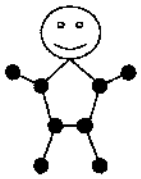
Problem 9:



Statement	Reason
1. $\angle Y \cong \angle C$	1. Given
2. $\overline{YA} \cong \overline{AC}$	2. Given
3. $\angle YAZ \cong \angle BAC$	3. Vertical Angles are $\cong$
4. $\Delta YZA \cong \Delta CBA$	4. ASA

HW

Geometry
CPCTC WORKSHEET

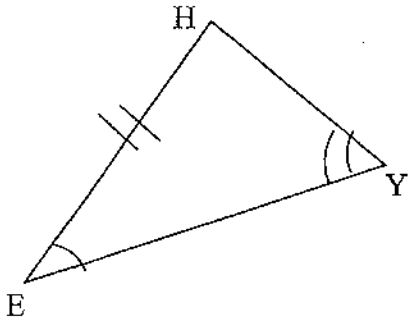


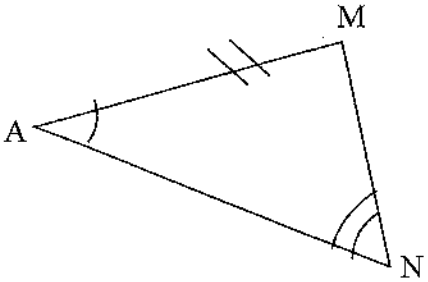
Name KEY
Date _____ Hour _____

#1: ΔHEY is congruent to ΔMAN by AAS.

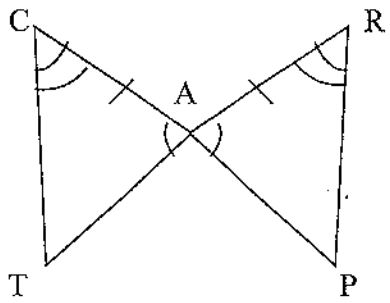
What **other** parts of the triangles are congruent **by CPCTC**?

$\overline{HY} \cong \overline{MN}$
$\angle H \cong \angle M$
$\overline{EY} \cong \overline{AN}$





#2:



ΔCAT ≅ ΔRAP, by ASA

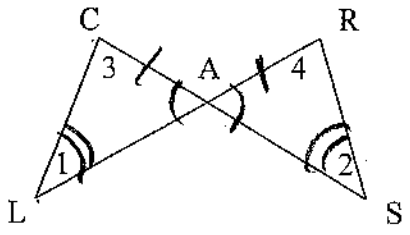
THEREFORE:

$\angle T \cong \angle P$, by CPCTC
$\overline{CT} \cong \overline{RP}$, by CPCTC
$\overline{AT} \cong \overline{AP}$, by CPCTC

#3:

Given: $\overline{AC} \cong \overline{AR}$ and $\angle 1 \cong \angle 2$

Prove: $\angle 3 \cong \angle 4$



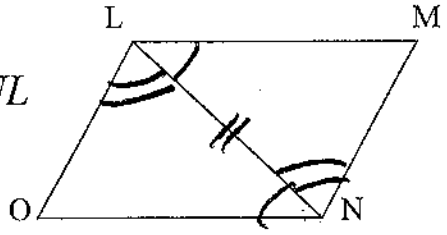
Proof:

1. $\overline{AC} \cong \overline{AR}$
2. $\angle 1 \cong \angle 2$
3. $\angle CAL \cong \angle RAS$
4. ΔLCA ≅ ΔSRA
5. $\angle 3 \cong \angle 4$

1. Given
2. Given
3. Vertical ∠s ≅
4. AAS
5. CPCTC

KEY

#4:



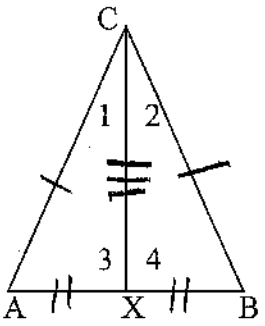
Given: $\angle NLM \cong \angle LNO$ and $\angle OLN \cong \angle MNL$

Prove: $\angle M \cong \angle O$

Proof:

1. $\angle NLM \cong \angle LNO$	1. Given
2. $\angle OLN \cong \angle MNL$	2. Given
3. $\overline{LN} \cong \overline{LN}$	3. Reflexive Property of $\cong$
4. $\Delta LMN \cong \Delta NOL$	4. ASA
5. $\angle O \cong \angle M$, $\angle LO \cong \angle NM$, $\overline{ON} \cong \overline{ML}$	5. CPCTC

#5



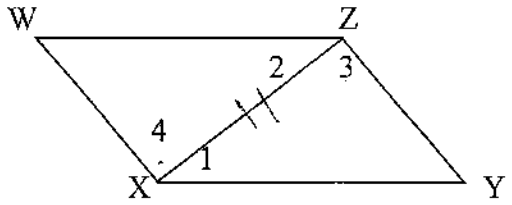
Given: $\overline{AC} \cong \overline{BC}$ and $\overline{AX} \cong \overline{BX}$

Prove: $\angle 1 \cong \angle 2$

Proof:

1. $\overline{AC} \cong \overline{BC}$	1. Given
2. $\overline{CX} \cong \overline{CX}$	2. Reflexive Prop. of Congruence
3. $\Delta AXC \cong \Delta BXC$	3. SSS
4. $\angle 1 \cong \angle 2$	4. CPCTC

#6



Given: $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$

Prove: $\overline{XY} \cong \overline{ZW}$

Proof:

1. $\angle 1 \cong \angle 2$, $\angle 3 \cong \angle 4$	1. Given
2. $\overline{XZ} \cong \overline{XZ}$	2. REFLEXIVE PROPERTY
3. $\Delta XWZ \cong \Delta ZYX$	3. ASA
4. $\overline{XY} \cong \overline{ZW}$	4. CPCTC