GEOMETRY

≅ Δs Worksheet I

NAME KEY

Date_____ Period_____

Given a reason (SSS, SAS, ASA, or AAS) that shows the triangles congruent. If none works, write none.

1 SAS	2 ASA	3 SAS, ASA
4. ASA	5 SSS	6 none
7 SAS	8 none	9 SSS
10. none	11. SSS	12. ASA
13. ASA	14. none	15. SAS

Mark the drawing to show the given information, and fill in the blanks.

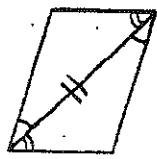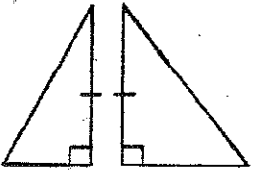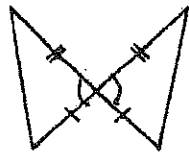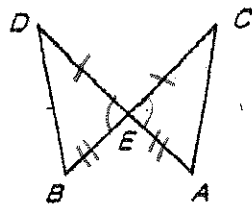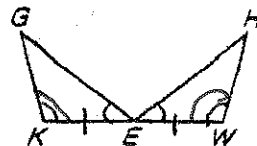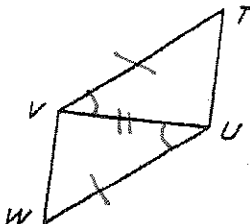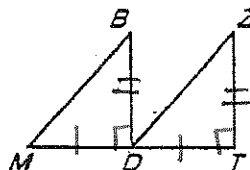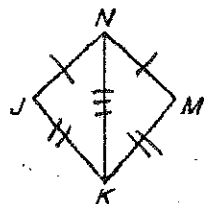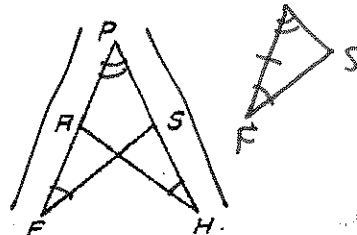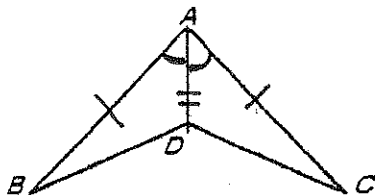|	
16. $\overline{DE} \cong \overline{EC}$ and $\overline{BE} \cong \overline{AE}$. $\triangle DEB \cong \underline{\triangle CEA}$ by $\underline{SAS}$.	**17.** E is the midpoint of $\overline{KW}$, $\angle KEG \cong \angle WEH$ and $\angle K \cong \angle W$. $\triangle KEG \cong \underline{\triangle WEH}$ by $\underline{ASA}$.
18. $\angle TVU \cong \angle WUV$ and $\overline{VT} \cong \overline{UW}$. $\triangle TUV \cong \underline{\triangle WVU}$ by $\underline{SAS}$.	**19.** D is the midpoint of $\overline{MT}$, $\angle MDB$ and $\angle T$ are right angles, and $\overline{BD} \cong \overline{ZT}$. $\triangle MDB \cong \underline{\triangle DTZ}$ by $\underline{SAS}$.
20. $\overline{JN} \cong \overline{MN}$ and $\overline{JK} \cong \overline{MK}$. $\triangle JNK \cong \underline{\triangle MNK}$ by $\underline{SSS}$.	**21.** $\overline{FP} \cong \overline{HP}$ and $\angle F \cong \angle H$. $\triangle PFS \cong \underline{\triangle PHR}$ by $\underline{ASA}$. ?
22. $\overline{AD}$ is the angle bisector of $\angle BAC$ and $\overline{BA} \cong \overline{CA}$. $\triangle BAD \cong \underline{\triangle CAD}$ by $\underline{SAS}$.	**23.** U is the midpoint of both $\overline{YX}$ and $\overline{WV}$, and $\overline{WY} \cong \overline{VX}$. $\triangle WUY \cong \underline{\triangle VUX}$ by $\underline{SAS}$ OR SSS
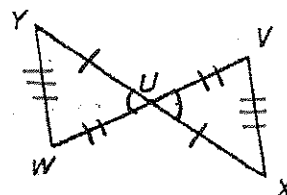
We want to know if $\triangle QPR \cong \triangle MNK$
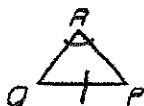
24. We know $\overline{QP} \cong \overline{MN}$. What else
   must we know to use ASA? $\underline{\angle Q \cong \angle M ; \angle P \cong \angle N}$

25. We know $\angle R \cong \angle K$. What else
   must we know to use SAS? $\underline{\overline{QR} \cong \overline{MK} \quad \overline{RP} \cong \overline{KN}}$

Name KEY

Date_____Period_____

$\angle 5 + \angle 7 = 90$

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1. $m\angle A = m\angle B$ and $m\angle B = m\angle C$

P   q   q   r

Transitive property

$m\angle A \cong m\angle C$

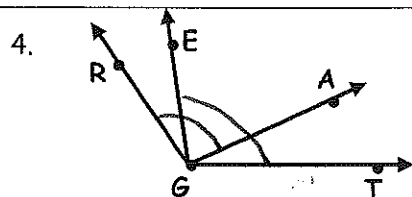**2.** $AB = CD$

A   B   C   D

overlapping Segment theorem

$AC = BD$

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3. $\angle 5$ and $\angle 7$ are complementary
$\angle 5$ and $\angle 2$ are complementary
$\angle 5 + \angle 2 = 90$

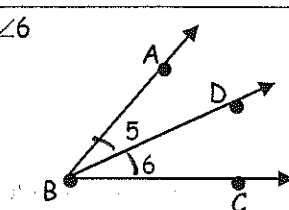substitution OR complementary

$\angle 7 \cong \angle 2$

4.
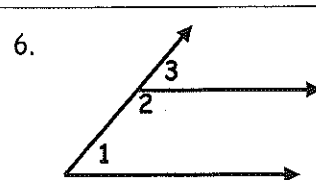
E   R   A   G   T

$m\angle RGA = m\angle EGT$

Overlapping angle Thm

$m\angle RGE \cong m\angle AGT$

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5. $\angle 5 \cong \angle 6$

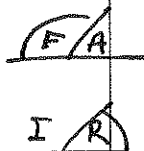A   D   5   6   B   C

def. of angle bisector

$\overline{BD}$ bisects $\angle ABC$

6.

3   2   1

def. of Supplementary OR linear pair
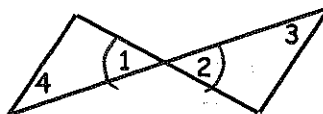
$m\angle 2 + m\angle 3 = 180$

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7. $\angle F$ and $\angle A$ are supplementary
$\angle I$ and $\angle R$ are supplementary
$\angle F \cong \angle R$ $\angle F + \angle A = 180°$
$\angle I + \angle R = 180$

F A
I R

substitution
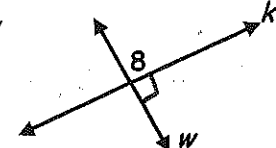
$\angle F + \angle R = 180$ OR
$\angle I + \angle F = 180°$

8.

4   1   2   3
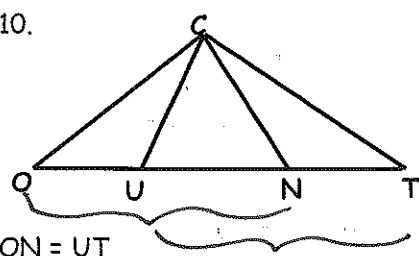
def of vertical angles

$m\angle 1 \cong m\angle 2$

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9. $k \perp w$

k   8   w

def. of $\perp$ lines

$m\angle 8 = 90$

10.

C   Q   U   N   T

ON = UT

def. of overlapping segments

$QU \cong NT$

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11. $\overrightarrow{KU}$ bisects $\angle LKC$

L   1   U   K   2   C
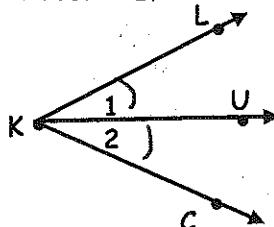
def. of angle bisector

$m\angle 1 \cong m\angle 2$

12.

C   O   U   N   T
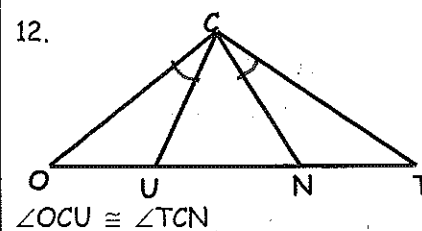
$\angle OCU \cong \angle TCN$

Overlapping angles

$\angle OCN \cong \angle TCU$

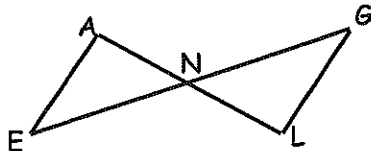| 13. $m\angle 1 + m\angle 2 = m\angle ABC$ $m\angle 2 = m\angle 3$	14. M is the midpoint of $\overline{AB}$	15. $\angle C$ and $\angle O$ are complementary $\angle M$ and $\angle P$ are complementary $\angle C \cong \angle M$
substitution	def. of midpt.	comp of $\cong$ $\angle s$ are $\cong$
$m\angle 1 + m\angle 3 = m\angle ABC$	$\overline{AM} \cong \overline{MB}$ or $AM=MB$	$\angle O \cong \angle P$

16. $\overline{AL}$ bisects $\overline{EG}$ at point N	17. $TR = RY$	18.
def. of seg. bisector	def. of midpt.	angle add. post.
$\overline{EN} \cong \overline{NG}$	R is midpt of $\overline{TY}$	$m\angle TSA + m\angle ASR = m\angle TSR$
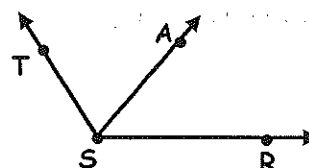
19. $\angle T$ is a right angle	20. $m\angle 3 + m\angle 7 = 180$	21. $m\angle A = 25$ $m\angle B = 48$
Def. of right $\angle$	def. of supp. $\angle s$	angle add. prop.
$m\angle T = 90$	$\angle 3$ and $\angle 7$ are supp.	$m\angle A + m\angle B = 73$

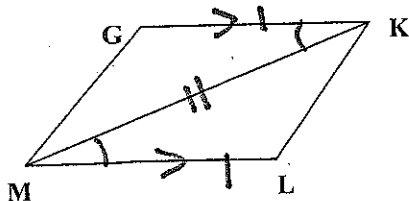| 22. $\angle K$ and $\angle Y$ are complementary	23.	24. $\angle D$ and $\angle O$ are supplementary $\angle O$ and $\angle G$ are supplementary
def. of comp. $\angle s$	segment addition post.	supp. of $\cong$ $\angle s$ are $\cong$
$m\angle Y + m\angle K = 90$	$SU + UN = SN$	$\angle D \cong \angle G$
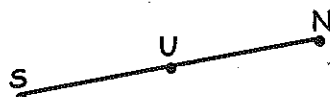
GEOMETRY Worksheet
≅Δs Worksheet II

NAME **Key**
DATE_____ PERIOD_____

Write Δ congruence (if possible) and tell which postulate (SSS, SAS, ASA, or AAS) you are using.

1. ΔGKM≅Δ **LMK** by **SAS** $\overline{GK} \parallel \overline{ML}$ GK≅ML	2. ΔABC≅Δ **DEC** by **ASA** ∠B ≅ ∠E C is midpoint of $\overline{BE}$ ∠DCB≅∠ECA
3. ΔPRQ≅Δ **TRS** by **SAS** R is midpoint of both PT and QS	4. ΔKLG≅Δ_____ by **NONE** GL bisects KM GL bisects ∠KGM
5. ΔRNG≅Δ **ENA** by **ASA** RN ≅ NE ∠R ≅ ∠E	6. ΔDAB≅Δ **BCD** by **AAS** AB ∥ DC ∠A ≅ ∠C
7. ΔWIT≅Δ **CHT** by **AAS or ASA** T is midpt. of HI WI ∥ HC	8. ΔCON≅Δ **CGN** by **SSS** CO ≅ GC ON ≅ NG
9. ΔGEO≅Δ **GMO** by **SAS** OG bisects ∠EOM EO ≅ MO	10. ΔTES ≅Δ **AEX** by **SSS or SAS** E is midpoint of both TA and SX TS ≅ AX
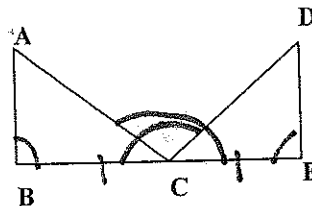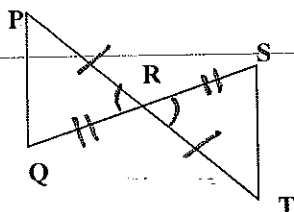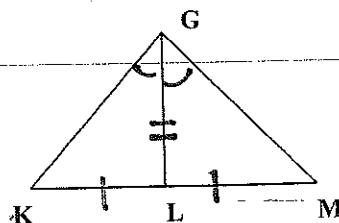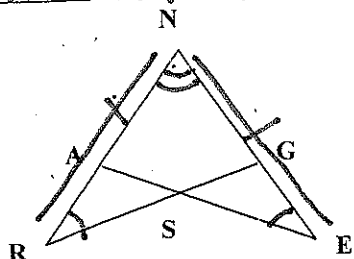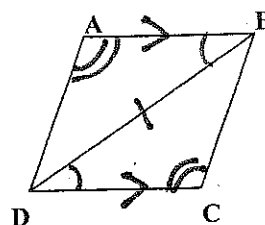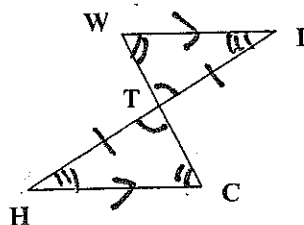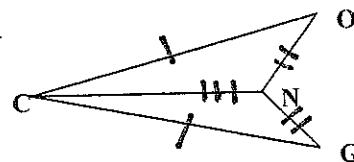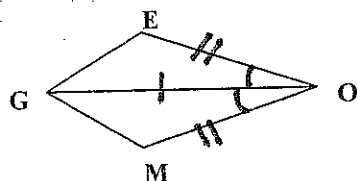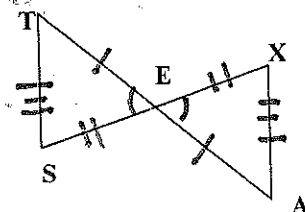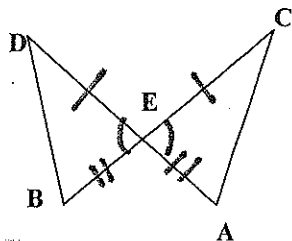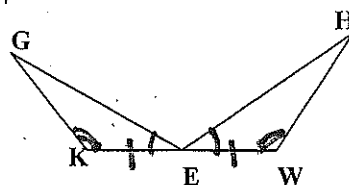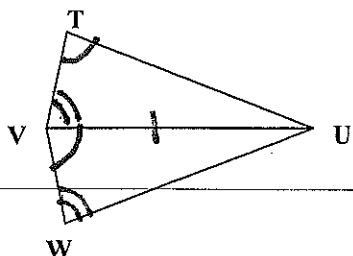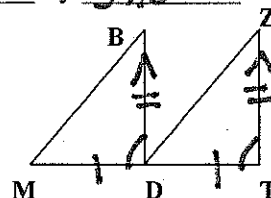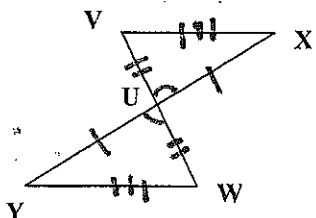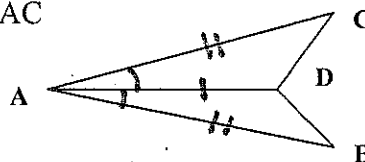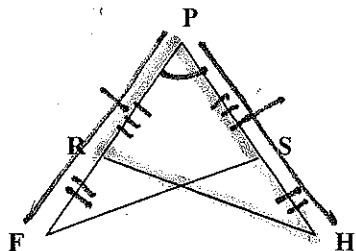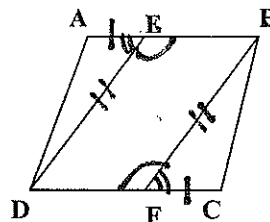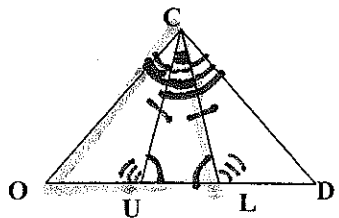
11. △DEB≅△ __CEA__ by __SAS__	12. △KEG≅△ __WEH__ by __ASA__
DE ≅ EC BE ≅ AE	E is midpoint of KW ∠KEG ≅ ∠WEH ∠K ≅ ∠W
13. △TVU≅△_____ by __NONE__	14. △MDB ≅△ __DTZ__ by __SAS__
∠VTU ≅ ∠UVW ∠ TVU ≅ ∠UWV	D is midpoint of MT BD ≅ ZT $\overline{BD} \parallel \overline{ZT}$
15. △WUY≅△ __VUX__ by __SSS or SAS__	16. △BAD≅△ __CAD__ by __SAS__
U is midpoint of both YX and WV WY ≅ VX	AD bisects ∠BAC BA ≅ CA
17. △PFS≅△ __PHR__ by __SAS__	18. △AED≅△ __CFB__ by __SAS__
FP ≅ HP RF ≅ SH	AE ≅ FC DE ≅ FB ∠BED ≅ ∠DFB
19. △COL≅△ __COU__ by __ASA__ △COU≅△ __COL__ by __ASA__ ∠CUD ≅ ∠CLO CU≅CL ∠OCU≅∠DCL	20. △ABD≅△ __CDB__ by __ASA__ AB || DC AD || BC