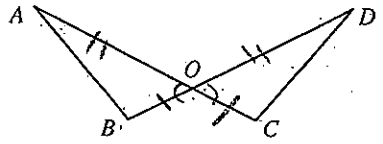
NAME Key DATE _____ SCORE _____

Using Congruent Triangles

For use after Section 4–3

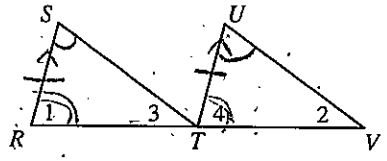
Supply the missing reasons in each proof.

1. Given: $\overline{BO} \cong \overline{CO}$; $\overline{AO} \cong \overline{DO}$
Prove: $\angle B \cong \angle C$
Proof:



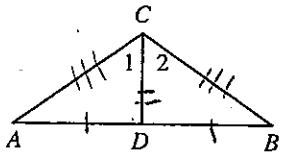
Statements	Reasons
1. $\overline{BO} \cong \overline{CO}$; $\overline{AO} \cong \overline{DO}$	1. Given
2. $\angle AOB \cong \angle DOC$	2. Vert. $\angle$s $\cong$
3. $\triangle ABO \cong \triangle DCO$	3. SAS
4. $\angle B \cong \angle C$	4. CPCTC

2. Given: $\overline{SR} \cong \overline{UT}$; $\overline{SR} \parallel \overline{UT}$; $\angle S \cong \angle U$
Prove: $\overline{ST} \parallel \overline{UV}$
Proof:



Statements	Reasons
1. $\overline{SR} \cong \overline{UT}$; $\overline{SR} \parallel \overline{UT}$; $\angle S \cong \angle U$	1. Given
2. $\angle 1 \cong \angle 4$	2. $\parallel$ lines $\rightarrow$ corr. $\angle$s $\cong$
3. $\triangle RST \cong \triangle TUV$	3. ASA
4. $\angle 3 \cong \angle 2$	4. CPCTC
5. $\overline{ST} \parallel \overline{UV}$	5. Corr. $\angle$s $\cong$ $\rightarrow$ $\parallel$ lines

3. Given: D is the midpoint of $\overline{AB}$; $\overline{CA} \cong \overline{CB}$
Prove: $\overrightarrow{CD}$ bisects $\angle ACB$.
Proof:



Statements	Reasons
1. D is the midpoint of $\overline{AB}$; $\overline{CA} \cong \overline{CB}$	1. Given
2. $\overline{AD} \cong \overline{DB}$	2. Def. mdpt.
3. $\overline{CD} \cong \overline{CD}$	3. Reflexive
4. $\triangle ACD \cong \triangle BCD$	4. SSS
5. $\angle 1 \cong \angle 2$	5. CPCTC
6. $\overrightarrow{CD}$ bisects $\angle ACB$.	6. def. $\angle$ bisector

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Practice 14

Lessons 4–1 through 4–3

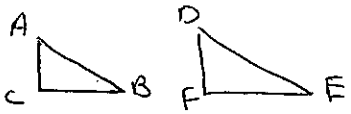
Corresponding Parts in a Congruence

Suppose $\triangle BIG \cong \triangle TOP$. Complete.

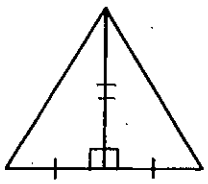
1. $\overline{IG} \cong$ $\overline{OP}$
2. BI $= TO$
3. $\angle I \cong$ $\angle O$
4. $m\angle G$ $= m\angle P$
5. $\triangle IBG \cong$ $\triangle OTP$
6. $\triangle IGB$ $\cong \triangle OPT$

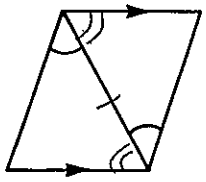
Complete each statement with the word *always*, *sometimes*, or *never*.

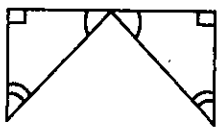
7. If three angles of one triangle are congruent to three angles of another triangle, the triangles are sometimes congruent.
8. If three sides of one triangle are congruent to three sides of another triangle, the triangles are always congruent.
9. Given $\triangle ABC$ with right angle C and $\triangle DEF$ with $\triangle ABC \cong \triangle DEF$, $\angle D$ is never congruent to $\angle C$.

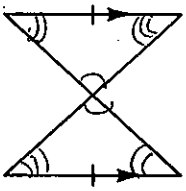


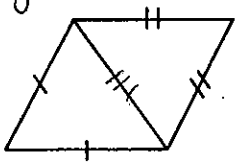
Can the two triangles be proved congruent? If so, name the postulate used. If not, write *no congruence can be deduced.*

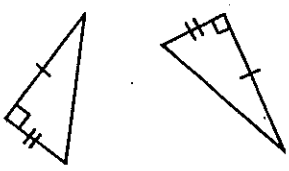
10. 
yes - SAS

11. 
yes - ASA

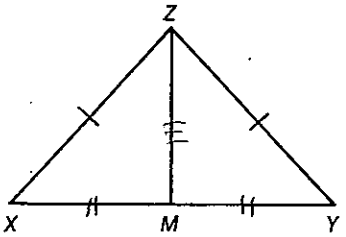
12. 
no $\cong$

13. 
yes - ASA

14. 
No $\cong$
~~yes SSS~~

15. 
yes - SAS

16. Write a two-column proof.
Given: M is the midpoint of $\overline{XY}$;
$\overline{XZ} \cong \overline{YZ}$
Prove: $\overrightarrow{ZM}$ bisects $\angle XZY$.



1. M is mdpt. of $\overline{XY}$ $\overline{XZ} \cong \overline{YZ}$	1. Given
2. $\overline{XM} \cong \overline{MY}$	2. def. mdpt.
3. $\overline{ZM} \cong \overline{ZM}$	3. Reflexive
4. $\triangle XZM \cong \triangle YZM$	4. SSS
5. $\angle XZM \cong \angle YZM$	5. CPCTC
6. $\overrightarrow{ZM}$ bisects $\angle XZY$	6. def. $\angle$ bisector