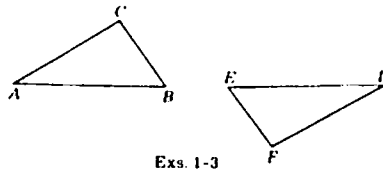


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### Using Congruent Triangles

In Exercises 1-3 assume that  $\triangle ABC \cong \triangle DEF$ .

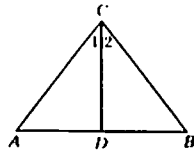
- $\angle A \cong \angle$  D
- $\overline{BC} \cong$   $\overline{EF}$
- $\angle F$  corresponds to  $\angle$  C



Exs. 1-3

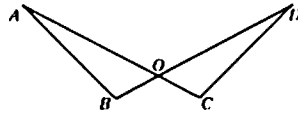
Supply the missing reasons for each proof.

4. Given:  $\overline{CD}$  bisects  $\angle ACB$ ;  
 $\overline{AC} \cong \overline{BC}$   
 Prove:  $\overline{AD} \cong \overline{BD}$



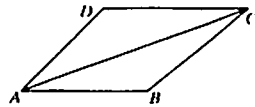
Statements	Reasons
1. $\overline{CD}$ bisects $\angle ACB$ , $\overline{AC} \cong \overline{BC}$	1. Given
2. $\angle 1 \cong \angle 2$	2. Def of angle bisector
3. $\overline{CD} \cong \overline{CD}$	3. Reflexive Property
4. $\triangle ADC \cong \triangle BDC$	4. SAS Postulate
5. $\overline{AD} \cong \overline{BD}$	5. Corr. parts of $\cong \triangle$ are $\cong$ .

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



Statements	Reasons
1. $\overline{BO} \cong \overline{CO}$ , $\overline{AO} \cong \overline{DO}$	1. Given
2. $\angle AOB \cong \angle DOC$	2. Vertical angles are congruent.
3. $\triangle ABO \cong \triangle DCO$	3. SAS Postulate
4. $\angle B \cong \angle C$	4. Corr. parts of $\cong \triangle$ are $\cong$ .

6. Given:  $\triangle ABC \cong \triangle CDA$   
 Prove:  $\overline{AB} \parallel \overline{CD}$



Statements	Reasons
1. $\triangle ABC \cong \triangle CDA$	1. Given
2. $\angle BAC \cong \angle DCA$	2. Corr. parts of $\cong \triangle$ are $\cong$ .
3. $\overline{AB} \parallel \overline{CD}$	3. If two lines are cut by a trans. such that alt. int. $\angle$ are $\cong$ , the lines are $\parallel$ .

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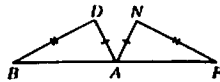
### Some Ways to Prove Triangles Congruent

Suppose  $\triangle RED \cong \triangle SUN$ . Complete.

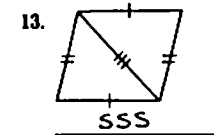
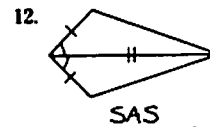
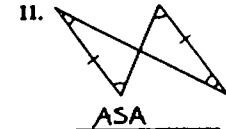
- $\angle E \cong \angle$  U
- $m\angle D = m\angle$  N
- $\overline{RE} \cong$   $\overline{SU}$
- $\overline{ED} \cong$   $\overline{UN}$
- $\triangle DRE \cong$   $\triangle NSU$
- $\triangle EDR \cong \triangle UNS$

The two triangles shown are congruent. Complete.

- $\triangle BAD \cong$   $\triangle FAN$
- $\angle N \cong \angle D$ , because corresponding parts of congruent triangles are congruent.
- $\overline{BA} = \overline{FA}$ ; A is the midpoint of  $\overline{BF}$ .

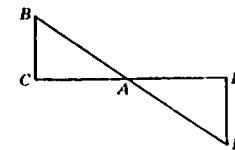


Can the two triangles be proved congruent? If so, what postulate can be used?



Supply the missing reasons in the proof.

14. Given:  $\overline{CA} \cong \overline{DA}$   
 $\overline{BA} \cong \overline{EA}$   
 Prove:  $\triangle BCA \cong \triangle EDA$



Statements	Reasons
1. $\overline{CA} \cong \overline{DA}$ and $\overline{BA} \cong \overline{EA}$	1. Given
2. $\angle BAC \cong \angle EAD$	2. Vertical angles are congruent.
3. $\triangle BCA \cong \triangle EDA$	3. SAS Postulate