

There is often more than one way to prove a particular statement, and the amount of detail one includes in a proof may differ from person to person. You should show enough steps so the reader can follow your argument and see why the theorem you are proving is true. As you gain more experience in writing proofs, you and your teacher may agree on what steps may be combined or omitted.

## Classroom Exercises

- a. In each exercise use the information given to conclude that two angles are congruent.  
b. Name or state the definition or theorem that justifies your conclusion.

1.  $\angle 6$  is comp. to  $\angle 10$ ;

$\angle 7$  is comp. to  $\angle 10$ .

2.  $m\angle 5 = 31$ ;  $m\angle 7 = 31$

3.  $\overline{AB} \perp \overline{CD}$

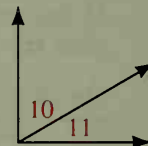
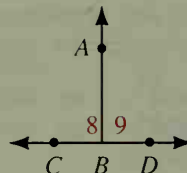
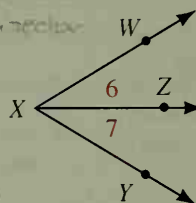
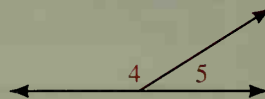
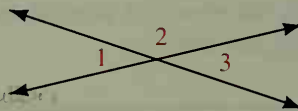
4.  $\overrightarrow{XZ}$  bisects  $\angle WXY$ .

5.  $\angle 4$  is supp. to  $\angle 6$ ;

$\angle 2$  is supp. to  $\angle 7$ ;

$\angle 6 \cong \angle 7$

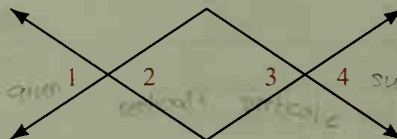
6. Given only the diagrams, and no additional information



Describe your plan for proving the following. You don't need to give all the details.

7. Given:  $\angle 2 \cong \angle 3$

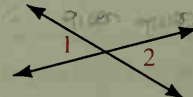
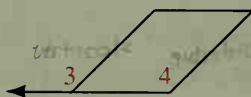
Prove:  $\angle 1 \cong \angle 4$



8. Given:  $\angle 3$  is supp. to  $\angle 1$ ;

$\angle 4$  is supp. to  $\angle 2$ .

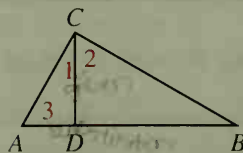
Prove:  $\angle 3 \cong \angle 4$



9. Given:  $\overline{AC} \perp \overline{BC}$ ;

$\angle 3$  is comp. to  $\angle 1$ .

Prove:  $\angle 3 \cong \angle 2$



10. Given:  $m\angle 1 = m\angle 4$

Prove:  $m\angle 2 = m\angle 3$

