

- A 1. Given:  $\triangle ABC$  with  $\overline{AB}$  and  $\overline{CB}$ ;  
 $\overline{AC} \cong \overline{BC}$ .

Prove:  $\angle 3 \cong \angle 1$ .

2. Given:  $\triangle ABC$  with  $\overline{AB}$  and  $\overline{CB}$ ;  
 $\angle 3 \cong \angle 1$ .

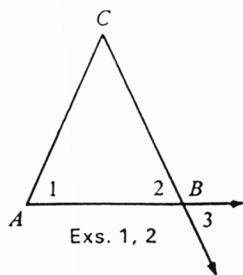
Prove:  $\overline{AC} \cong \overline{BC}$ .

3. Given:  $\triangle ABR$  with  $\overline{AR}$ ;  $\overline{RS} \parallel \overline{AB}$ ;  
 $\angle 1 \cong \angle 2$ .

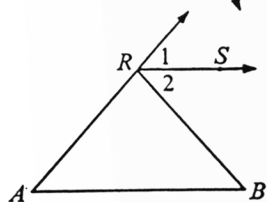
Prove:  $\overline{RA} \cong \overline{RB}$ .

4. Given:  $\triangle ABR$  with  $\overline{AR}$ ;  $\overline{RA} \cong \overline{RB}$ ;  
 $\overline{RS} \parallel \overline{AB}$ .

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



Exs. 1, 2



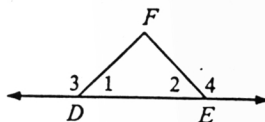
Exs. 3, 4

5. Given:  $\triangle DEF$  and  $\overline{DE}$ ;  $\overline{DF} \cong \overline{EF}$ .

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

6. Given:  $\triangle DEF$  and  $\overline{DE}$ ;  $\angle 3 \cong \angle 4$ .

Prove:  $\overline{DF} \cong \overline{EF}$ .



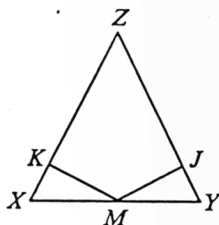
Exs. 5, 6

7. Given:  $\triangle XYZ$ ;  $\overline{XZ} \cong \overline{YZ}$ ; M is midpoint of  $\overline{XY}$ ;  $\overline{MK} \perp \overline{XZ}$ ;  $\overline{MJ} \perp \overline{YZ}$ .

Prove:  $\overline{MK} \cong \overline{MJ}$ .

8. Given:  $\triangle XYZ$ ;  $\overline{MK} \perp \overline{XZ}$ ;  $\overline{MJ} \perp \overline{YZ}$ ;  
 $\overline{XK} \cong \overline{YJ}$ ;  $\overline{MK} \cong \overline{MJ}$ .

Prove:  $\triangle XYZ$  is isosceles.



Exs. 7, 8

- B 9. Prove Theorem 6-4 by using the perpendicular from the vertex to the base line as your auxiliary line. You may assume that the perpendicular intersects the base segment.

10. Prove Theorem 6-5 by drawing an auxiliary line as in Exercise 9.

11. Given:  $\triangle ARQ$ ;  $\overline{AR} \cong \overline{AQ}$ ;  
 $\overline{RS} \cong \overline{QT}$ .

Prove:  $\overline{AS} \cong \overline{AT}$ .

12. Given:  $\triangle ARQ$ ;  $\overline{AR} \cong \overline{AQ}$ ;  
 $\angle 1 \cong \angle 3$ .

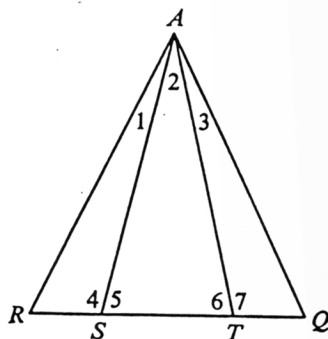
Prove:  $\overline{AS} \cong \overline{AT}$ .

13. Given:  $\triangle ARQ$ ;  $\angle R \cong \angle Q$ ;  
 $\overline{AS} \cong \overline{AT}$ .

Prove:  $\overline{RS} \cong \overline{QT}$ .

14. Given:  $\triangle ARQ$ ;  $\overline{AR} \cong \overline{AQ}$ ;  
 $\overline{RS} \cong \overline{QT}$ .

Prove:  $\angle RAT \cong \angle QAS$ .



Exs. 11-14