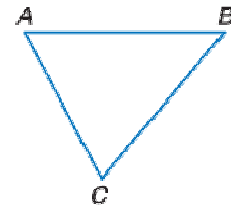


Lesson 4-4

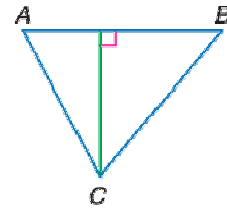
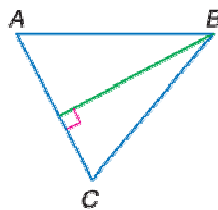
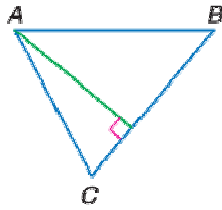
**Example 1**

Sketch all the altitudes and medians of  $\triangle ABC$ .

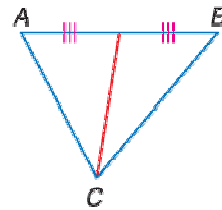
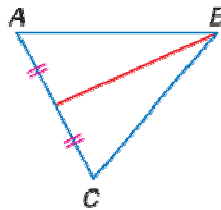
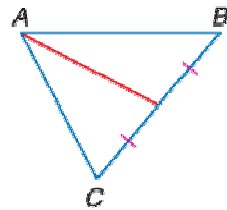


**Solution**

There are three altitudes, shown below in green.



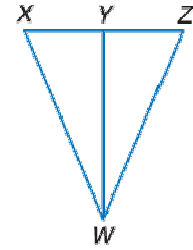
Similarly, there are three medians, shown below in red.



**Example 2**

**ARCHITECTURE** A triangular construction is shown on a set of plans. The architect has determined that  $\overline{WY}$  is a perpendicular bisector of  $\overline{XZ}$ . She needs to know whether these statements are true or false.

- a.  $\overline{XY} \cong \overline{ZY}$                       b.  $\overline{WX} \cong \overline{WZ}$

**Solution**

- a. By the definition of perpendicular bisector,  $Y$  is the midpoint of  $\overline{XZ}$ .  
By the definition of midpoint, this means that  $XY = ZY$ , or  $\overline{XY} \cong \overline{ZY}$ .  
The given statement is true.
- b. Point  $W$  is a point on the perpendicular bisector of  $\overline{XZ}$ .  
By the perpendicular bisector theorem, this means that point  $W$  is equidistant from points  $X$  and  $Z$ . That is,  $WX = WZ$  or  $\overline{WX} \cong \overline{WZ}$ .  
The given statement is true.