

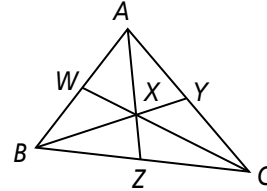
# Practice

## Medians and Altitudes

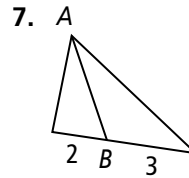
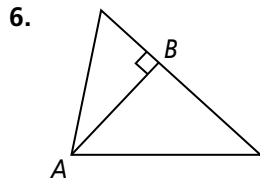
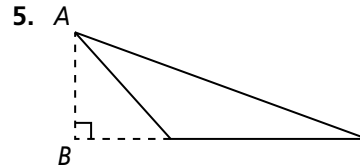
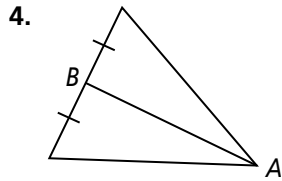
### 4.4

In  $\triangle ABC$ ,  $X$  is the centroid.

1. If  $CW = 15$ , find  $CX$  and  $XW$ .
2. If  $BX = 8$ , find  $BY$  and  $XY$ .
3. If  $XZ = 3$ , find  $AX$  and  $AZ$ .

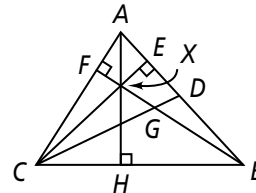
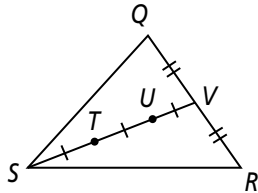


Is  $\overline{AB}$  a median, an altitude, or neither? Explain.



**Coordinate Geometry** Find the orthocenter of  $\triangle ABC$ .

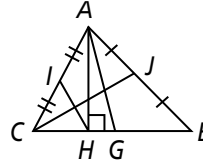
8.  $A(2, 0), B(2, 4), C(6, 0)$
9.  $A(1, 1), B(3, 4), C(6, 1)$
10. Name the centroid.
11. Name the orthocenter.



Draw a triangle that fits the given description. Then construct the centroid and the orthocenter.

12. equilateral  $\triangle CDE$
13. acute isosceles  $\triangle XYZ$

14. a median in  $\triangle ABC$



15. an altitude for  $\triangle ABC$

16. a median in  $\triangle AHC$

17. an altitude for  $\triangle AHB$

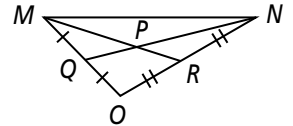
18. an altitude for  $\triangle AHG$

19.  $A(0, 0)$ ,  $B(0, -2)$ ,  $C(-3, 0)$ . Find the orthocenter of  $\triangle ABC$ .

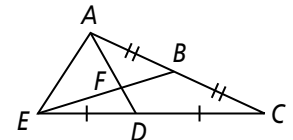
20. Cut a large isosceles triangle out of paper. Paper-fold to construct the medians and the altitudes. How are the altitude to the base and

ter?

22.  $P$  is the centroid of  $\triangle MNO$ .  $MP = 14x + 8y$ . Write expressions to represent  $PR$  and  $MR$ .



23.  $F$  is the centroid of  $\triangle ACE$ .  $AD = 15x^2 + 3y$ . Write expressions to represent  $AF$  and  $FD$ .



24. Use coordinate geometry to prove the following statement.

**Given:**  $\triangle ABC$ ;  $A(c, d)$ ,  $B(c, e)$ ,  $C(f, e)$

angle.