

5-4

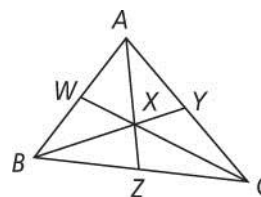
Practice

Form G

Medians and Altitudes

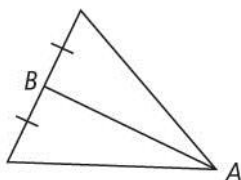
In $\triangle ABC$, X is the centroid.

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

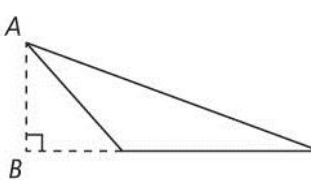


Is \overline{AB} a median, an altitude, or neither? Explain.

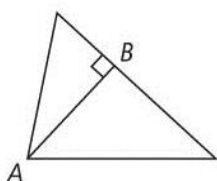
4.



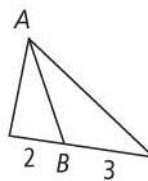
5.



6.



7.



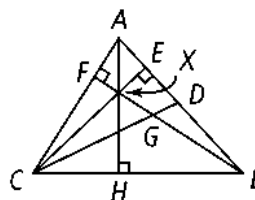
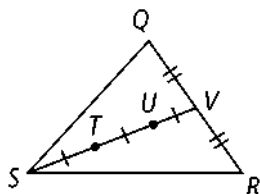
Coordinate Geometry Find the orthocenter of $\triangle ABC$.

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 $\triangle XYZ$

5-4

Practice (continued)

Form G

Medians and Altitudes

In Exercises 14–18, name each segment.

14. a median in $\triangle ABC$

15. an altitude for $\triangle ABC$

16. a median in $\triangle AHC$

17. an altitude for $\triangle AHB$

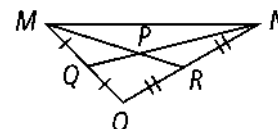
18. an altitude for $\triangle AHG$

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

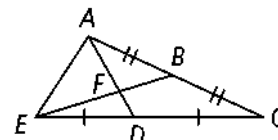
20. Cut a large isosceles triangle out of paper. Paper-fold to construct the medians and the altitudes. How are the altitude to the base and the median to the base related?

21. In which kind of triangle is the centroid at the same point as the orthocenter?

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

Prove: The circumcenter of $\triangle ABC$ is a point on the triangle.