Name _____   Date _____
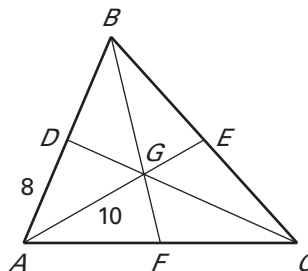
LESSON 5.4 **Practice B**
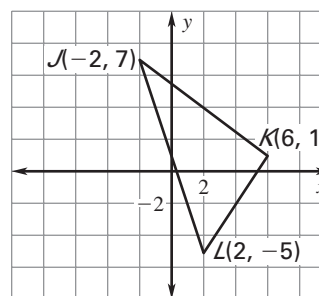*For use with pages 318–327*

G is the centroid of △ABC, AD = 8, AG = 10, and CD = 18. Find the length of the segment.

1. $\overline{BD}$ **2.** $\overline{AB}$

3. $\overline{EG}$ **4.** $\overline{AE}$

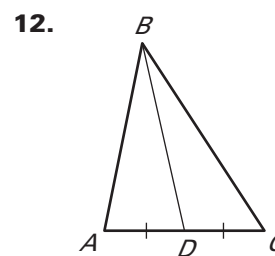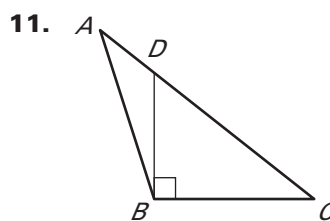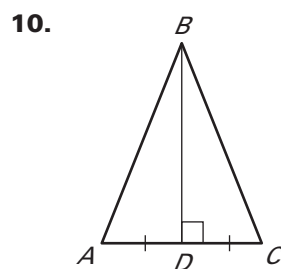**5.** $\overline{CG}$ **6.** $\overline{DG}$

7. Use the graph shown.

   a. Find the coordinates of *M*, the midpoint of $\overline{JK}$. Use the median $\overline{LM}$ to find the coordinates of the centroid *P*.

   b. Find the coordinates of *N*, the midpoint of $\overline{JL}$.

   Verify that $KP = \frac{2}{3}KN$.

Find the coordinates of the centroid P of △ABC.

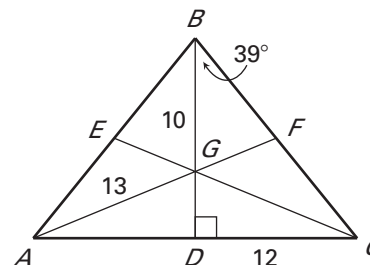**8.** $A(-7, -4), B(-3, 5), C(1, -4)$ **9.** $A(0, -2), B(6, 1), C(9, -5)$

Is $\overline{BD}$ a *perpendicular bisector* of △ABC? Is $\overline{BD}$ a *median*? an *altitude*?

10.   **11.**   **12.**

Find the measurements.

13. Given that $AB = BC$, find AD and $m\angle ABC$.

14. Given that *G* is the centroid of △ABC, find FG and BD.

LESSON 5.4 **Practice B** *continued*

For use with pages 318–327

Copy and complete the statement for △ _HJK_ with medians _HN_, _JL_, and _KM_, and centroid _P_.

15. $PN =$ __?__ HN **16.** $PL =$ __?__ JP **17.** $KP =$ __?__ KM

Point _G_ is the centroid of △ _ABC_. Use the given information to find the value of _x_.

18. $CG = 3x + 7$ and $CE = 6x$

**19.** $FG = x + 8$ and $AF = 9x - 6$

20. $BG = 5x - 1$ and $DG = 4x - 5$
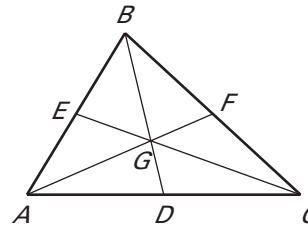
Complete the sentence with *always*, *sometimes*, or *never*.

21. The median of a triangle is __?__ the perpendicular bisector.

22. The altitude of a triangle is __?__ the perpendicular bisector.

23. The medians of a triangle __?__ intersect inside the triangle.

24. The altitudes of a triangle __?__ intersect inside the triangle.

25. **House Decoration** You are going to put a decoration on your house in the triangular area above the front door. You want to place the decoration on the centroid of the triangle. You measure the distance from point A to point B (see figure). How far down from point A should you place the decoration? *Explain*.
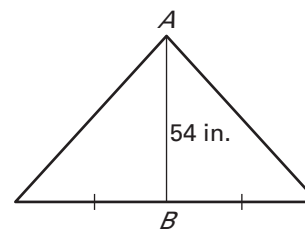
26. **Art Project** You are making an art piece which consists of different items of all shapes and sizes. You want to insert an isosceles triangle with the dimensions shown. In order for the triangle to fit, the height (altitude) must be less than 8.5 millimeters. Find the altitude. Will the triangle fit in your art piece?