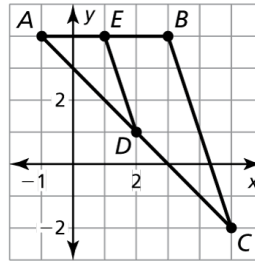


6.4

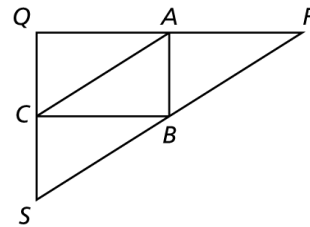
Practice A

In Exercises 1–5, use the graph of $\triangle ABC$.

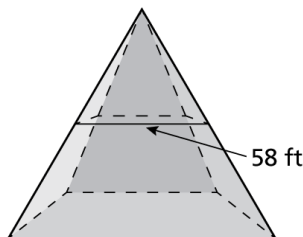


1. In $\triangle ABC$, show that the midsegment \overline{ED} is parallel to \overline{BC} and that $ED = \frac{1}{2}BC$.
2. Find the coordinates of the endpoints of midsegment \overline{EF} , which is opposite \overline{AC} .
3. Show that \overline{EF} is parallel to \overline{AC} and that $EF = \frac{1}{2}AC$.
4. State the coordinates of the endpoints of midsegment \overline{DF} .
5. Show that \overline{DF} is parallel to \overline{AB} and $DF = \frac{1}{2}AB$.

In Exercises 6–11, use $\triangle QRS$ where **A**, **B**, and **C** are the midpoints of the sides.



6. When $AB = 16$, what is QS ?
7. When $SR = 68$, what is CA ?
8. When $SR = 46$, what is BR ?
9. When $CA = 3x - 1$ and $SR = 5x + 4$, what is CA ?
10. When $QS = 6x$ and $CS = 5x - 8$, what is AB ?
11. When $QR = 5x + 2$ and $CB = 2x + 5$, what is AR ?
12. Your friend claims that because each midsegment is half as long as the corresponding side of the triangle, the perimeter of the midsegment triangle is half the perimeter of the original triangle. Is your friend correct? Explain your reasoning.
13. A building has the shape of a pyramid with a square base. The midsegment parallel to the ground of each triangular face of the pyramid has a length of 58 feet. Find the length of the base the pyramid.

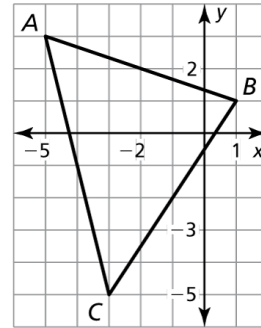


6.4

Practice B

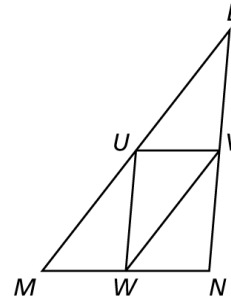
In Exercises 1–4, use the graph of $\triangle ABC$.

- Find the coordinates of the midpoint D of \overline{AB} , the midpoint E of \overline{CB} , and the midpoint F of \overline{AC} .
- Graph the midsegment triangle, $\triangle DEF$.
- Show that $\overline{FD} \parallel \overline{CB}$, $\overline{FE} \parallel \overline{AB}$, and $\overline{DE} \parallel \overline{AC}$.
- Show that $FD = \frac{1}{2}CB$, $FE = \frac{1}{2}AB$, and $DE = \frac{1}{2}AC$.

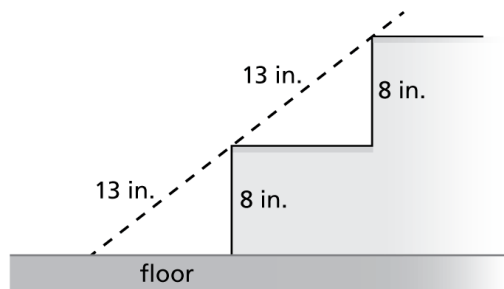


In Exercises 5–8, use $\triangle LMN$, where U , V , and W are the midpoints of the sides.

- When $LV = 9$, what is UW ?
- When $LU = 2(x - 5)$ and $VW = 8 - x$, what is LM ?
- When $NL = 2x(12 + x)$ and $UW = (x + 4)^2$, what is LV ?
- When $UV = 2y + 14$ and $MN = 13 - y$, what is WN ?



- The bottom two steps of a stairwell are shown. Explain how to use the given measures to verify that the bottom step is parallel to the floor.



- Your friend claims that a triangle with side lengths of a , b , and c will have half the area of a triangle with side lengths of $2a$, $2b$, and $2c$. Is your friend correct? Explain your reasoning.