

## Enrichment 5-1

### *Midsegments and Areas of Triangles*

**MATERIALS:** Graph paper, straightedge

**Use a coordinate plane to graph the given information and answer each question.**

1. Graph  $\triangle ABC$ , given the following vertices.  
 $A(0, 6)$   
 $B(0, 0)$   
 $C(5, 0)$
2. Find and graph the midpoint of  $\overline{AB}$ . Label it point  $D$ .
3. Find and graph the midpoint of  $\overline{BC}$ . Label it point  $E$ .
4. Find and graph the midpoint of  $\overline{AC}$ . Label it point  $F$ .
5. Draw the three midsegments of the triangle.
6. Find the area of the four small triangles.
7. How are the areas of the four small triangles related?
8. What is the ratio of the area of a small triangle to the area of  $\triangle ABC$ ?

**On a different coordinate plane, graph the information given below, and answer each question.**

9. Graph  $\triangle QRS$ , given the following vertices:  
 $Q(1, 4)$   
 $R(6, -3)$   
 $S(12, -3)$
10. Find and graph the midpoint of  $\overline{QR}$ . Label it point  $T$ .
11. Find and graph the midpoint of  $\overline{RS}$ . Label it point  $U$ .
12. Find and graph the midpoint of  $\overline{QS}$ . Label it point  $V$ .
13. Draw the three midsegments of the triangle.
14. What is the area of  $\triangle QRS$ ?
15. What is the area of one of the smaller triangles?