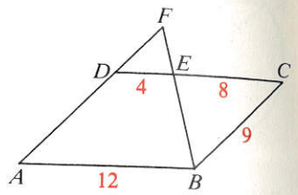
9. **a.** Are all circles similar?
b. If two circles have radii 9 and 12, what is the ratio of the circumferences? of the areas?

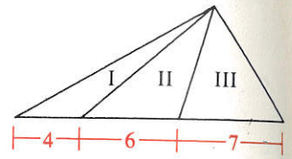
10. The areas of two circles are 25π and 81π. What is the ratio of the circumferences?

11. $ABCD$ is a parallelogram. Find each ratio.

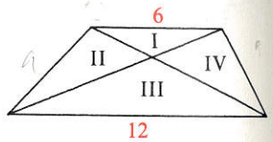
a. $\frac{\text{Area of } \triangle DEF}{\text{Area of } \triangle ABF}$ **b.** $\frac{\text{Area of } \triangle DEF}{\text{Area of } \triangle CEB}$



12. Consider triangles I, II, and III.
a. Are any of these triangles similar?
b. Can Theorem 9-6 be used?
c. Find the ratio of the areas of triangles I and II.
d. Find the ratio of the areas of triangles II and III.



13. The figure is a trapezoid. Find the ratio of the areas of each pair of triangles.
a. I and III **b.** I and II
c. I and IV **d.** II and IV



14. On a map of California, 1 cm corresponds to 50 km. Find the ratio of the map's area to the actual area of California.

Written Exercises

The table refers to similar figures. Copy and complete the table.

A

	1.	2.	3.	4.	5.	6.	7.	8.
Scale factor	1:4	3:2	6:7	?	?	?	?	?
Ratio of perimeters	?	?	?	9:5	3:13	?	?	?
Ratio of areas	?	?	?	?	?	25:1	9:64	2:1

9. Two circles have radii 7 and 11. What is the ratio of the areas?

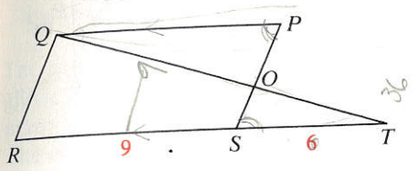
10. The areas of two circles are 36π and 64π. What is the ratio of the circumferences?

11. L, M, and N are the midpoints of the sides of $\triangle ABC$. Find the ratio of the perimeters and the ratio of the areas of $\triangle LMN$ and $\triangle ABC$.

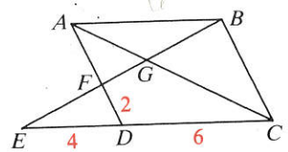
12. $\triangle ABC \sim \triangle XYZ$, $AB = 6$, $BC = 8$, $AC = 9$, and $XY = 10$. Find the ratio of the perimeters and the ratio of the areas.

13. The lengths of two similar rectangles are x^2 and xy, respectively. What is the ratio of the areas?

14. In the diagram below, $PQRS$ is a parallelogram. Find the ratio of the areas for each pair of triangles.
a. $\triangle TOS$ and $\triangle QOP$ **b.** $\triangle TOS$ and $\triangle TQR$



Ex. 14

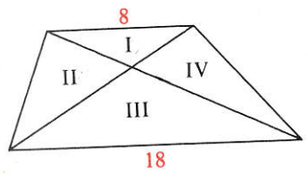


Ex. 15

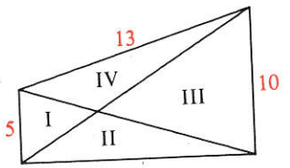
B **15.** In the diagram above, $ABCD$ is a parallelogram. Name *four pairs* of similar triangles and give the ratio of the areas for each pair.

The figures in Exercises 16 and 17 are trapezoids. Find the ratio of the areas of each pair of triangles.
a. I and III **b. I and II** **c. I and IV** **d. II and IV**

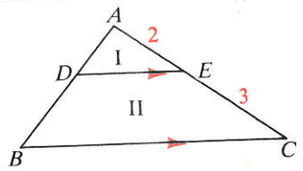
16.



17.

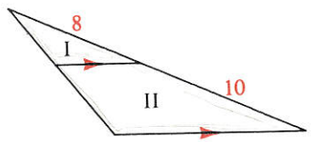


18. **a.** Are figures I and II similar?
b. Name two similar triangles.
c. What is the ratio of their areas?
d. What is the ratio of the areas of figures I and II?

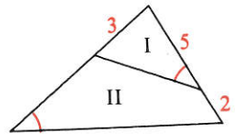


For Exercises 19 and 20, find the ratio of the areas of figures I and II. Note that these figures are not similar.

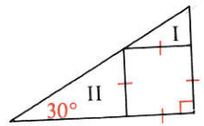
19.



20.



21. A square is inscribed in a 30°-60°-90° triangle. Find the ratio of the areas of regions I and II.



22. The area of parallelogram $ABCD$ is 48 cm^2 and $DE = 2 \cdot EC$. Find the area of each triangle.
a. $\triangle ABE$ **b.** $\triangle BEC$ **c.** $\triangle ADE$ **d.** $\triangle CEF$ **e.** $\triangle DEF$