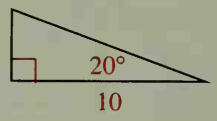
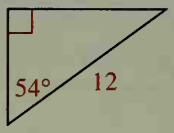
In Exercises 21–24 use a calculator or the trigonometry table on page 311 to find the area of each figure to the nearest tenth.

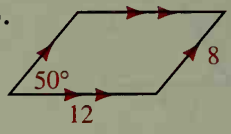
21.



22.



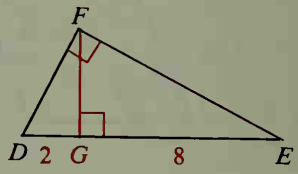
23.



24. An isosceles triangle with a 32° vertex angle and a base of 8 cm

25. $\overline{FG}$ is the altitude to the hypotenuse of $\triangle DEF$. Name three similar triangles and find their areas. (*Hint*: See Theorem 8-1 and Corollary 1 on pages 285–286.)

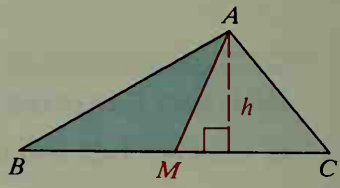
26. If the area of $\square PQRS$ is 36 and T is a point on $\overline{PQ}$, find the area of $\triangle RST$. (*Hint*: Draw a diagram.)



In Exercises 27 and 28, $\overline{AM}$ is a median of $\triangle ABC$.

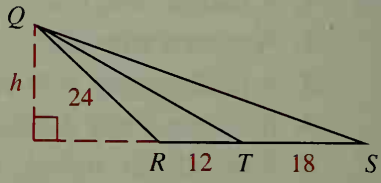
27. If $BC = 16$ and $h = 5$, find the areas of $\triangle ABC$ and $\triangle AMB$.

28. Prove: Area of $\triangle AMB = \frac{1}{2} \cdot$ Area of $\triangle ABC$



29. **a.** Find the ratio of the areas of $\triangle QRT$ and $\triangle QTS$.

b. If the area of $\triangle QRS$ is 240, find the length of the altitude from S to $\overleftrightarrow{QR}$.



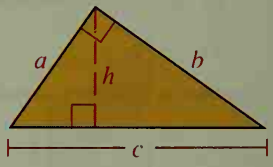
30. An isosceles triangle has sides that are 5 cm, 5 cm, and 8 cm long. Find its area and the lengths of the three altitudes.

31. **a.** Find the area of the right triangle in terms of a and b.

b. Find the area of the right triangle in terms of c and h.

c. Solve for h in terms of the other variables.

d. A right triangle has legs 6 and 8. Find the lengths of the altitude and the median to the hypotenuse.



32. Use the diagram at the right.

a. Find the area of $\square PQRS$.

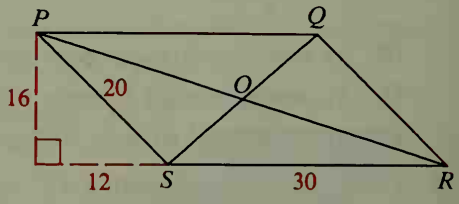
b. Find the area of $\triangle PSR$.

c. Find the area of $\triangle OSR$. (*Hint*: Refer to $\triangle PSR$ and use Exercise 28.)

d. What is the area of $\triangle PSO$?

e. What must the area of $\triangle POQ$ be? Why? What must the area of $\triangle OQR$ be?

f. State what you have shown in parts (a)–(e) about how the diagonals of a parallelogram divide the parallelogram.



33. **a.** An equilateral triangle has sides of length s. Show that its area is $\frac{s^2}{4}\sqrt{3}$.

b. Find the area of an equilateral triangle with side 7.