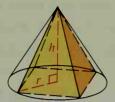
- 31. A square is rotated in space about a side s. Describe the solid formed and find its volume in terms of s.
- **32.** A cylinder with height 10 and radius 6 is inscribed in a square prism. Make a sketch. Then find the volume of the prism.
- **33.** A regular square pyramid with base edge 4 cm is inscribed in a cone with height 6 cm. What is the volume of the cone?
- **34.** A regular square pyramid is inscribed in a cone with radius 4 cm and height 4 cm.
  - a. What is the volume of the pyramid?
  - **b.** Find the slant heights of the cone and the pyramid.



Exs. 33, 34

- 35. A cone is inscribed in a regular square pyramid with slant height 9 cm and base edge 6 cm. Make a sketch. Then find the volume of the cone.
- **36.** The lateral area of a cone is three-fifths the total area. Find the ratio of the radius and the slant height.
- **C** 37. A regular hexagonal pyramid with base edge 6 and height 8 is inscribed in a cone. Find the lateral areas of the cone and the pyramid.
  - **38.** A 120° sector is cut out of a circular piece of tin with radius 6 in. and bent to form the lateral surface of a cone. What is the volume of the cone?
  - **39.** In  $\triangle ABC$ , AB = 15, AC = 20, and BC = 25. The triangle is rotated in space about  $\overline{BC}$ . Find the volume of the solid formed.
  - **40.** An equilateral triangle with sides of length s is rotated in space about one side. Show that the volume of the solid formed is  $\frac{1}{4}\pi s^3$ .

## Challenge

A piece of wood contains a square hole, a circular hole, and a triangular hole, as shown. Explain how one block of wood in the shape of a cube with 2 cm edges can be cut down so that it can pass through, and exactly fit, all three holes.

