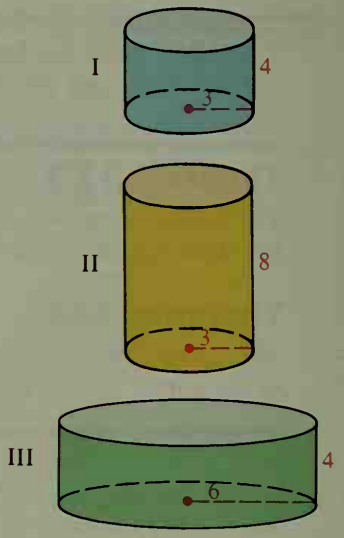
2. **a.** Find the lateral areas of cylinders I, II, and III.
   b. Notice that the height of II is twice the height of I. Is the lateral area of II twice the lateral area of I?
   c. Notice that the radius of III is twice the radius of I. Is the lateral area of III twice the lateral area of I?

3. **a.** Find the total areas of cylinders I, II, and III.
   b. Are the ratios of the total areas the same as those of the lateral areas in Exercise 2?

4. **a.** Find the volumes of cylinders I, II, and III.
   b. Notice that the height of II is twice the height of I. Is the volume of II twice the volume of I?
   c. Notice that the radius of III is twice the radius of I. Is the volume of III twice the volume of I?



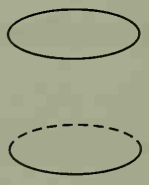
Complete the table for the cone shown.

	r	h	l	L.A.	T.A.	V
5.	3	4	?	?	?	?
6.	?	12	13	?	?	?
7.	6 cm	?	10 cm	?	?	?

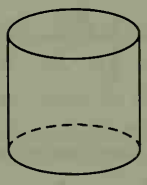
8. Describe the intersection of a plane and a cone if the plane is the perpendicular bisector of the altitude of the cone.

Written Exercises

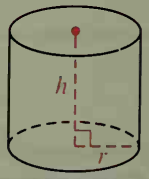
You can use the following three steps to sketch a cylinder.



(1) Draw two congruent ovals, one above the other.



(2) Join the ovals with two vertical segments.



(3) Draw in the altitude and a radius.

Sketch each cylinder. Then find its lateral area, total area, and volume.

A **1.** $r = 4$; $h = 5$ **2.** $r = 8$; $h = 10$ **3.** $r = 4$; $h = 3$ **4.** $r = 8$; $h = 15$

5. The volume of a cylinder is 64π. If $r = h$, find r.
6. The lateral area of a cylinder is 18π. If $h = 6$, find r.
7. The volume of a cylinder is 72π. If $h = 8$, find the lateral area.
8. The total area of a cylinder is 100π. If $r = h$, find r.