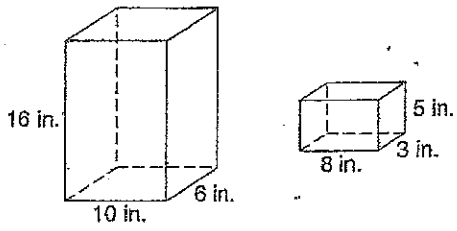
11-7 Study Guide – Areas and Volumes of Similar Solids

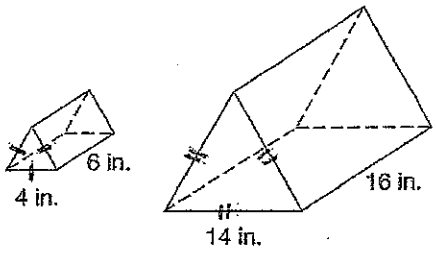
Solids that have the same shape but different in size are said to be similar. You can tell if two solids are similar by comparing the ratios of corresponding linear measurements.

Determine if the two solids are similar. If so, give the similarity ratio.

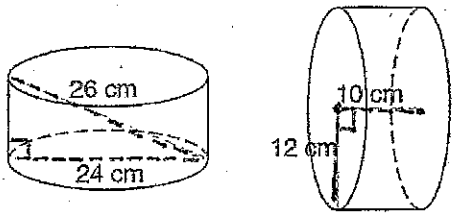
1.



2.

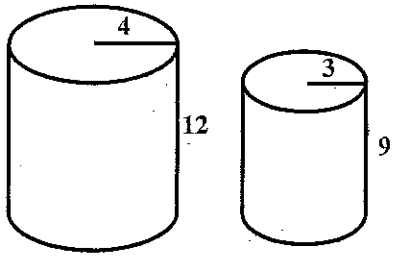


3.



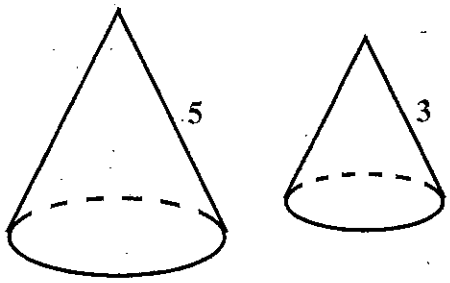
The following two cylinders are similar. Fill in the table below.

	radius	Circum-ference	height	Base area	Lateral Area	Volume
Big						
Little						



Linear ratios (similarity ratio) Area ratios Volume ratios

Given that these two cones are similar.



4) Find the similarity ratio.

5) Find the ratio of their diameters.

6) What is the ratio of their base areas?

7) What is the ratio of their volumes?

8) If the lateral area of the little cone is 60 in^2, find the lateral area of the big cone.

9) If the volume of the big cone is 600 cm^3, find the volume of the little cone.

10) The ratio of the slant height of two pyramids is 2 to 5 and the surface area of the larger pyramid is 105 cm2. Find the surface area of the smaller pyramid.

11) Two similar prisms have surface areas in a ratio of 9 to 16. If the volume of the smaller prism is 67.5 in^3, find the volume of the larger prism.