Written Exercises

- A 1. Two cones have radii 6 cm and 9 cm. The heights are 10 cm and 15 cm, respectively. Are the cones similar?
 - 2. The heights of two right prisms are 18 ft and 30 ft. The bases are squares with sides 8 ft and 15 ft, respectively. Are the prisms similar?
 - 3. Two similar cylinders have radii 3 and 4. Find the ratios of the following:

 a. heights
 b. base circumferences
 c. lateral areas
 d. volumes
 - **4.** Two similar pyramids have heights 12 and 18. Find the ratios of the following:
 - **a.** base areas **b.** lateral areas
 - areas c. total areas
- d. volumes
- 5. Assume that the Earth and the moon are smooth spheres with diameters 12,800 km and 3,200 km, respectively. Find the ratios of the following:

 a. lengths of their equators

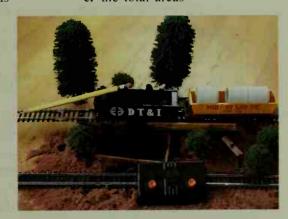
 b. areas

 c. volumes
- 6. Two similar cylinders have lateral areas 81π and 144π . Find the ratios of: a. the heights
 b. the total areas
 c. the volumes
- 7. Two similar cones have volumes 8π and 27π . Find the ratios of: **a.** the radii **b.** the slant heights **c.** the lateral areas
- 8. Two similar pyramids have volumes 3 and 375. Find the ratios of:

 a. the heights

 b. the base areas

 c. the total areas
- 9. The package of a model airplane kit states that the scale is 1:200. Compare the amounts of paint required to cover the model and the actual airplane. (Assume the paint on the model is as thick as that on the actual airplane.)
- 10. The scale for a certain model freight train is 1:48. If the model hopper car (usually used for carrying coal) will hold 90 in.³ of coal, what is the capacity in cubic feet of the actual hopper car? (*Hint*: See Exercise 10, page 477.)



- 11. Two similar cones have radii of 4 cm and 6 cm. The total area of the smaller cone is 36π cm². Find the total area of the larger cone.
- **B** 12. A diagonal of one cube is 2 cm. A diagonal of another cube is $4\sqrt{3}$ cm. The larger cube has volume 64 cm³. Find the volume of the smaller cube.
 - 13. Two balls made of the same metal have radii 6 cm and 10 cm. If the smaller ball weighs 4 kg, find the weight of the larger ball to the nearest 0.1 kg.
 - 14. A snow man is made using three balls of snow with diameters 30 cm, 40 cm, and 50 cm. If the head weighs about 6 kg, find the total weight of the snow man. (Ignore the arms, eyes, nose and mouth.)

