

## Written Exercises

- A**
- Two cones have radii 6 cm and 9 cm. The heights are 10 cm and 15 cm, respectively. Are the cones similar?
  - 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?
  - Two similar cylinders have radii 3 and 4. Find the ratios of the following:
    - heights
    - base circumferences
    - lateral areas
    - volumes
  - Two similar pyramids have heights 12 and 18. Find the ratios of the following:
    - base areas
    - lateral areas
    - total areas
    - volumes
  - 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:
    - lengths of their equators
    - areas
    - volumes
  - Two similar cylinders have lateral areas  $81\pi$  and  $144\pi$ . Find the ratios of:
    - the heights
    - the total areas
    - the volumes
  - Two similar cones have volumes  $8\pi$  and  $27\pi$ . Find the ratios of:
    - the radii
    - the slant heights
    - the lateral areas
  - Two similar pyramids have volumes 3 and 375. Find the ratios of:
    - the heights
    - the base areas
    - the total areas
  - 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.)
  - The scale for a certain model freight train is 1:48. If the model hopper car (usually used for carrying coal) will hold  $90 \text{ in.}^3$  of coal, what is the capacity in cubic feet of the actual hopper car? (*Hint*: See Exercise 10, page 477.)
  - Two similar cones have radii of 4 cm and 6 cm. The total area of the smaller cone is  $36\pi \text{ cm}^2$ . Find the total area of the larger cone.
- B**
- A diagonal of one cube is 2 cm. A diagonal of another cube is  $4\sqrt{3}$  cm. The larger cube has volume  $64 \text{ cm}^3$ . Find the volume of the smaller cube.
  - 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.
  - 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.)

