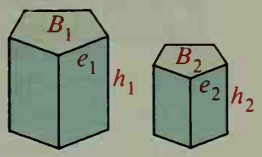
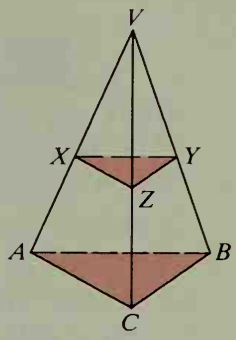
26. The bases of two similar right prisms are regular pentagons with base edges e_1 and e_2 and base areas B_1 and B_2. The heights are h_1 and h_2. Prove that the ratio of the lateral areas is $e_1^2 : e_2^2$.

27. Refer to Exercise 26. Prove that the ratio of the volumes of the prisms is $e_1^3 : e_2^3$.



C **28.** The purpose of this exercise is to prove that if plane XYZ is parallel to plane ABC, then $V\text{-}XYZ \sim V\text{-}ABC$. To do this, suppose that $VA = k \cdot VX$ and show that every edge of $V\text{-}ABC$ is k times as long as the corresponding edge of $V\text{-}XYZ$. (*Hint*: Use Theorem 3-1.)

29. A plane parallel to the base of a pyramid separates the pyramid into two pieces with equal volumes. If the height of the pyramid is 12, find the height of the top piece.

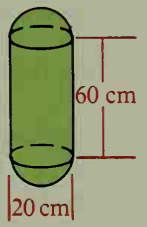


Self-Test 2

1. Find the area and volume of a sphere with diameter 6 cm.

2. The volume of a sphere is $\frac{32}{3}\pi$ m^3. Find the area of the sphere.

3. The students of a school decide to bury a time capsule consisting of a cylinder capped by two hemispheres. Find the volume of the time capsule shown.



Ex. 3

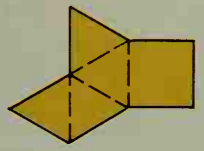
4. Find the area of the circle formed when a plane passes 12 cm from the center of a sphere with radius 13 cm.

5. One regular triangular pyramid has base edge 8 and height 6. A similar pyramid has height 4.
a. Find the base edge of the smaller pyramid.
b. Find the ratio of the total areas of the pyramids.

6. The base areas of two similar prisms are 32 and 200, respectively.
a. Find the ratio of their heights. **b.** Find the ratio of their volumes.

Challenge

A pattern for a model is shown. Can you tell what it is? To build it, make a large copy of the pattern on stiff paper. Cut along the solid lines, fold along the dashed lines, and tape the edges together.



If you want to make a pattern for a figure, think about the number of faces, their shapes, and how the edges are related. Try to create and build models for a triangular prism, a triangular pyramid, and a cone.