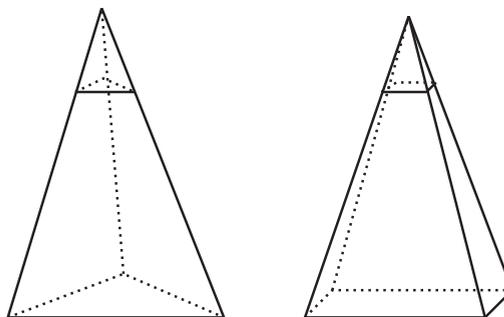


## Lesson 13 Practice Problems

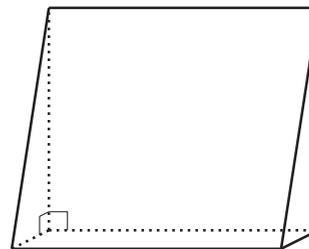
1. Find the volume of a pyramid whose base is a square with side lengths of 6 units and height of 8 units.
  
2. A cylinder has radius 9 inches and height 15 inches. A cone has the same radius and height.
  - a. Find the volume of the cylinder.
  
  - b. Find the volume of the cone.
  
  - c. What fraction of the cylinder's volume is the cone's volume?

3. Each solid in the image has height 4 units. The area of each solid's base is 8 square units. A cross section has been created in each by dilating the base using the apex as a center with scale factor  $k = 0.25$ .



- a. Calculate the area of each of the 2 cross sections.
  
- b. Suppose a new cross section was created in each solid, both at the same height, using some scale factor  $k$ . How would the areas of these 2 cross sections compare? Explain your reasoning.

4. Select the most specific and accurate name for the solid in the image.



- A. triangular pyramid
- B. regular prism
- C. square prism
- D. right triangular prism

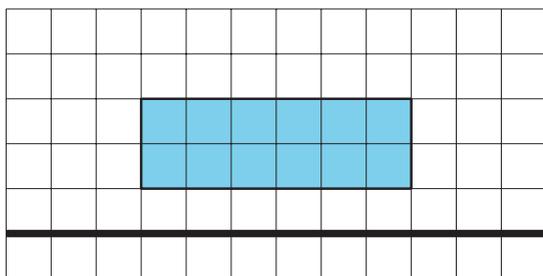
(From Unit 5, Lesson 12.)

5. A solid can be constructed with 4 triangles and 1 rectangle. What is the name for this solid?

- A. rectangular pyramid
- B. triangular pyramid
- C. right triangular prism
- D. rectangular prism

(From Unit 5, Lesson 12.)

6. Find the volume of the solid produced by rotating this two-dimensional shape using the axis shown.



(From Unit 5, Lesson 11.)

7. This zigzag crystal vase has a height of 20 centimeters. The cross sections parallel to the base are always rectangles that are 12 centimeters wide by 6 centimeters long.



- a. If we assume the crystal itself has no thickness, what would be the volume of the vase?
- b. The crystal is actually 1 centimeter thick on each of the sides and on the bottom. Approximately how much space is contained within the vase? Explain or show your reasoning.

(From Unit 5, Lesson 10.)

8. A trapezoid has an area of 10 square units. What scale factor would be required to dilate the trapezoid to have an area of 90 square units?
- A. 9
- B. 6
- C. 3
- D.  $\frac{1}{3}$

(From Unit 5, Lesson 5.)