

Name

14-6

Lesson Master

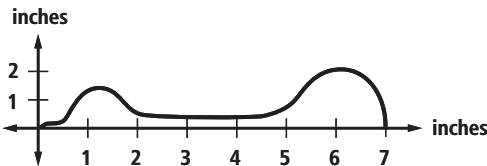
Questions on SPUR Objectives

See Student Edition pages 862–865 for objectives.

USES

Objective F

1. A “hand boiler” is a device made out of two blown glass bulbs connected by a narrow glass tube, as shown at the right. There is liquid (usually dyed a bright color) in the bottom bulb. When you wrap your fingers around the bottom bulb, the heat from your hand increases the pressure in the bulb, forcing the liquid into the top bulb. The outer curve of the hand boiler is sketched on the graph below.



Imagine rotating this curve around the horizontal axis to create a solid of revolution. Estimate the volume of the hand boiler by dividing the solid into 7 sections and using a Riemann sum. Use the left endpoints of the subintervals as the intermediate values in your sum.

REPRESENTATIONS

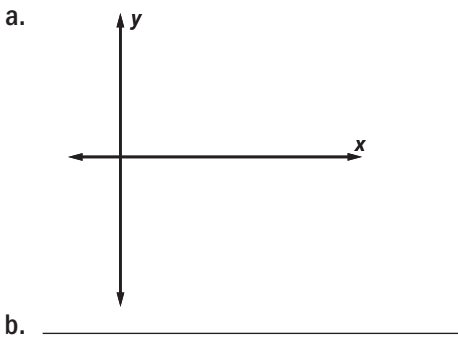
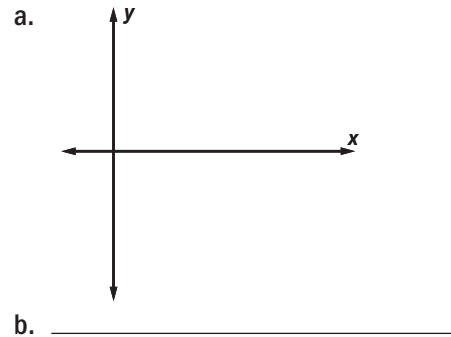
Objective J

In 2 and 3, a region is described.

- a. Sketch a graph of the region.

b. Find the exact volume of the solid formed when the region is rotated about the  $x$ -axis.
2. the region bounded by the  $x$ -axis, the  $y$ -axis, the line  $x = 9$ , and the line  $y = \frac{1}{3}x + 1$

3. the region bounded by the  $x$ -axis, the lines  $x = 3$  and  $x = 8$ , and the curve with equation  $y = \sqrt{x + 1}$



4. a. The solid formed when the region bounded by the  $x$ -axis and the graph of  $y = \sqrt{25 - x^2}$  is rotated about the  $x$ -axis is what type of geometric figure?

b. Find the volume of this solid.
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