

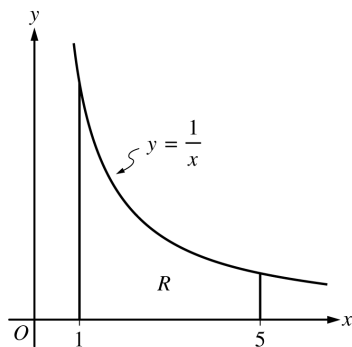


Figure 1

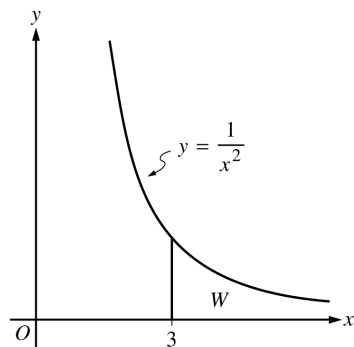


Figure 2

5. Figures 1 and 2, shown above, illustrate regions in the first quadrant associated with the graphs of $y = \frac{1}{x}$ and $y = \frac{1}{x^2}$, respectively. In Figure 1, let R be the region bounded by the graph of $y = \frac{1}{x}$, the x -axis, and the vertical lines $x = 1$ and $x = 5$. In Figure 2, let W be the unbounded region between the graph of $y = \frac{1}{x^2}$ and the x -axis that lies to the right of the vertical line $x = 3$.

- (a) Find the area of region R .
- (b) Region R is the base of a solid. For the solid, at each x the cross section perpendicular to the x -axis is a rectangle with area given by $xe^{x/5}$. Find the volume of the solid.
- (c) Find the volume of the solid generated when the unbounded region W is revolved about the x -axis.

Write your responses to this question only on the designated pages in the separate Free Response booklet. Write your solution to each part in the space provided for that part.