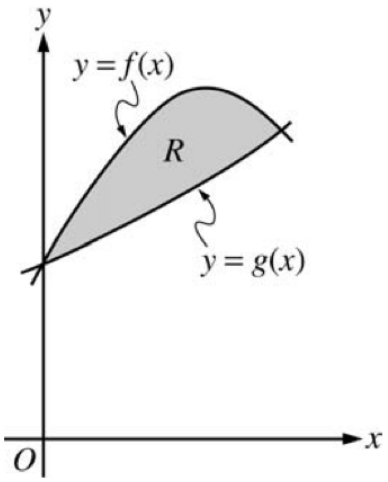
Let f and g be the functions given by $f(x) = 1 + \sin(2x)$ and $g(x) = e^{x/2}$. Let R be the shaded region in the first quadrant enclosed by the graphs of f and g as shown in the figure above.

(a) Find the area of R.

(b) Find the volume of the solid generated when R is revolved about the x-axis.

(c) The region R is the base of a solid. For this solid, the cross sections perpendicular to the x-axis are semicircles with diameters extending from $y = f(x)$ to $y = g(x)$. Find the volume of this solid.

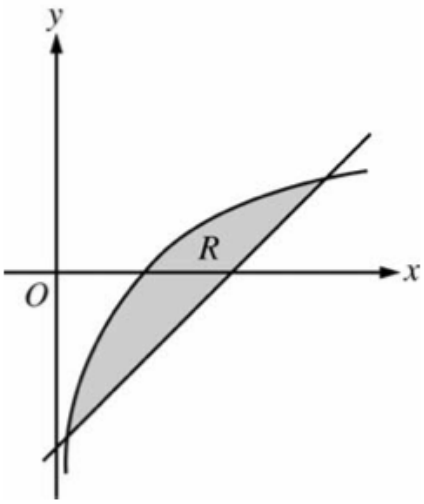


Let R be the shaded region bounded by the graph of $y = \ln x$ and the line $y = x - 2$, as shown above.

(a) Find the area of R.

(b) Find the volume of the solid generated when R is rotated about the horizontal line $y = -3$.

(c) Write, but do not evaluate, an integral expression that can be used to find the volume of the solid generated when R is rotated about the y-axis.



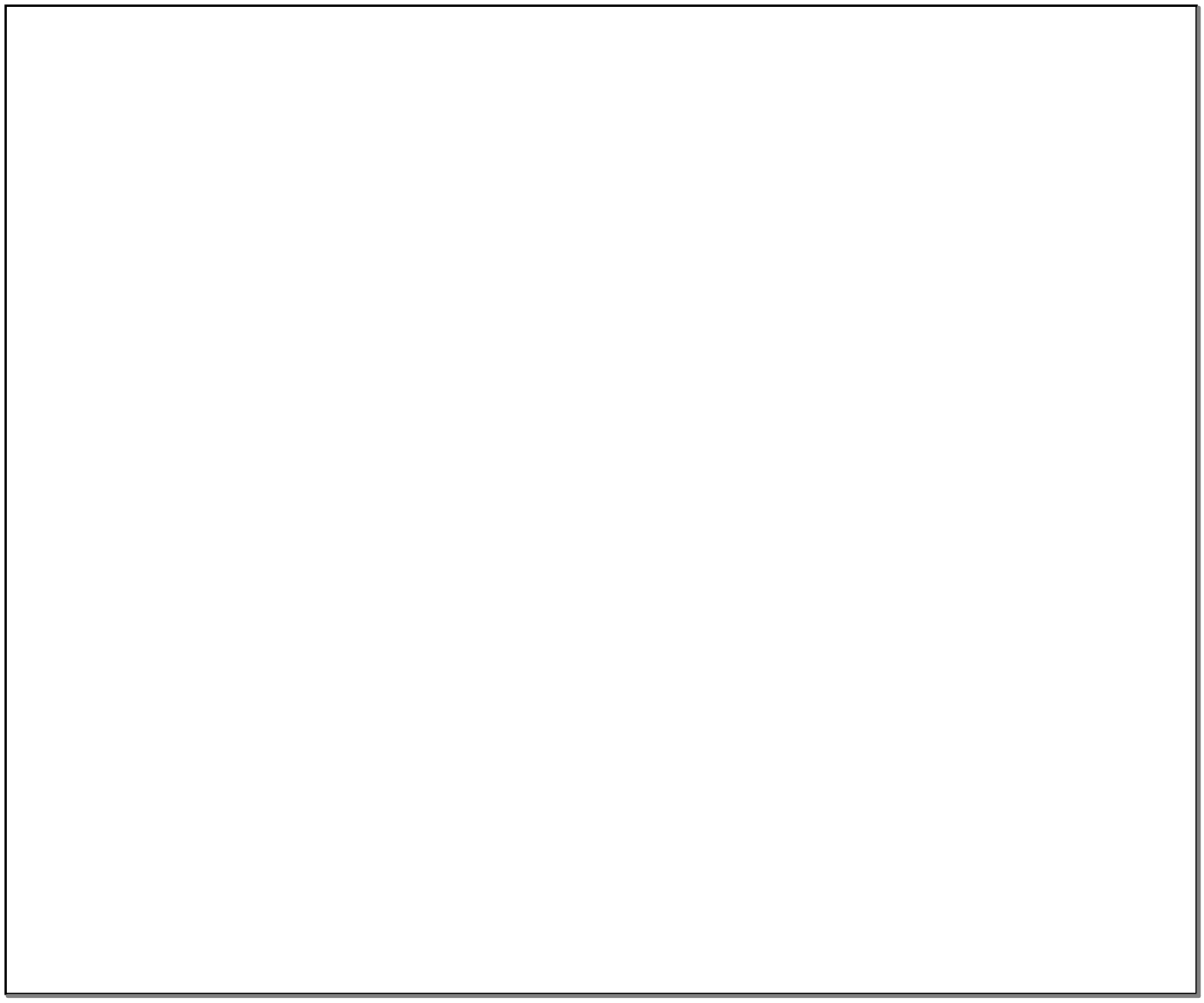
The region bounded by the curve $y = \sqrt{x}$ the x-axis and the line x = 4 is revolved about the x-axis. Find the volume of the solid.

Use discs

The region bounded by the curve $y = \sqrt{x}$ the x-axis and the line x = 4 is revolved about the x-axis. Find the volume of the solid.

Use the cylindrical shell method

April 09, 2013



The region bounded by the curve $y = 4 - x^2$, $y = x$, and $x = 0$ is revolved around the y-axis to form a solid. Find the volume of the solid.

Use discs

The region bounded by the curve $y = 4 - x^2$, $y = x$, and $x = 0$ is revolved around the y-axis to form a solid. Find the volume of the solid.

Use the cylindrical shell method