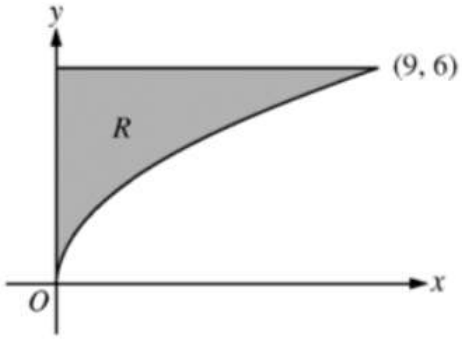
2010AB4 no calc (modded)




4. Let $R$ be the region in the first quadrant bounded by the graph of $y = 2\sqrt{x}$, the horizontal line $y = 6$, and the $y$-axis, as shown in the figure above.

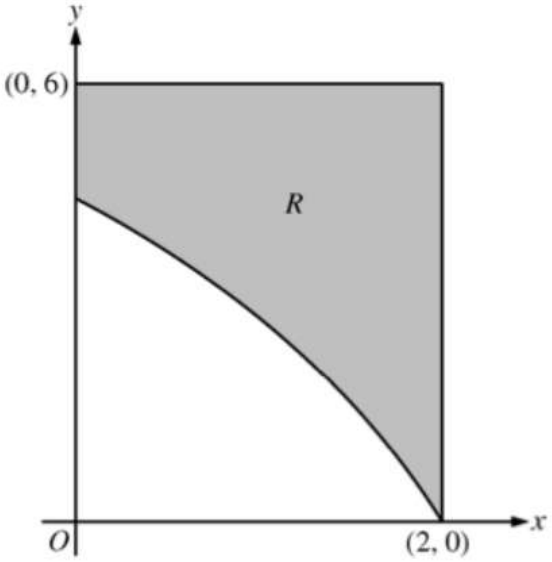
   (a) Find the area of $R$.

   (b) Write, but do not evaluate, an integral expression that gives the volume of the solid generated when $R$ is rotated about the horizontal line $y = 7$.

   (c) Region $R$ is the base of a solid. For each $y$, where $0 \le y \le 6$, the cross section of the solid taken perpendicular to the $y$-axis is a rectangle whose height is 3 times the length of its base in region $R$. Write, but do not evaluate, an integral expression that gives the volume of the solid.

   (d) Write, but do not evaluate, an integral expression which gives the volume of the solid generated when $R$ is rotated about the vertical line x=10.

2010AB1b yes calc (modded)




1. In the figure above, $R$ is the shaded region in the first quadrant bounded by the graph of $y = 4\ln(3 - x)$, the horizontal line $y = 6$, and the vertical line $x = 2$.

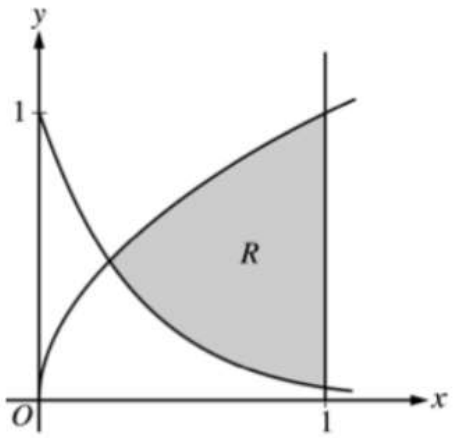
   (a) Find the area of $R$.

   (b) Find the volume of the solid generated when $R$ is revolved about the horizontal line $y = 8$.

   (c) The region $R$ is the base of a solid. For this solid, each cross section perpendicular to the $x$-axis is a square. Find the volume of the solid.

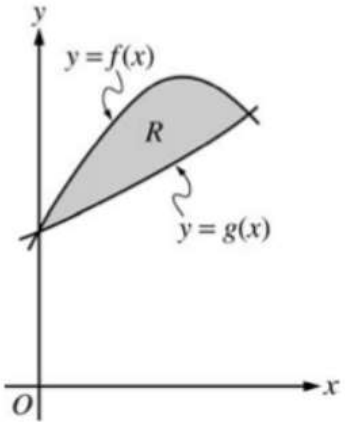
   (d) Repeat part (b) except about the horizontal line $y = -1$

2003 AB1 yes calc




1. Let $R$ be the shaded region bounded by the graphs of $y = \sqrt{x}$ and $y = e^{-3x}$ and the vertical line $x = 1$, 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 horizontal line $y = 1$.
   (c) The region $R$ is the base of a solid. For this solid, each cross section perpendicular to the $x$-axis is a rectangle whose height is 5 times the length of its base in region $R$. Find the volume of this solid.

2005AB1b yes calc (modded)




1. 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.

(d) Find the volume of the solid generated when $R$ is revolved about the vertical line x=5