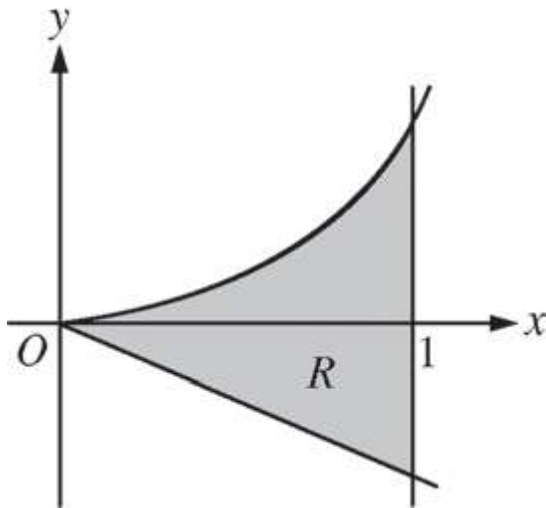Volume

Volume(Solids)
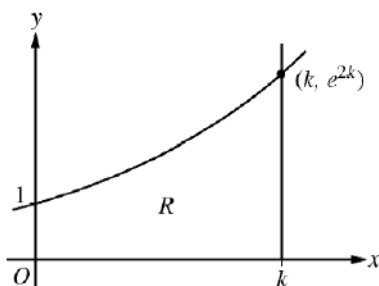

5. Let R be the shaded region bounded by the graph of $y = xe^{x^2}$, the line y = -2x, and the vertical line x =1, as shown in the figure above.

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 = -2.

2011 BC 3

Let $f(x) = e^{2x}$. Let R be the region in the first quadrant bounded by the graph of f, the coordinate axes and the vertical line x = k, where k > 0. The region R is shown in the figure.
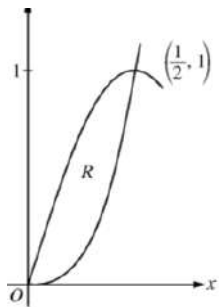
b. The region R is rotated about the x-axis to form a solid. Find the volume, V, of the solid in terms of k.

2011 AB #3

Let R be the region in the first quadrant enclosed by the graphs of $f(x) = 8x^3$ and $g(x) = \sin(\pi x)$, as shown in the figure.
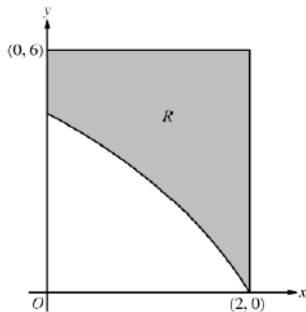
Write, but do not evaluate an integral expression for the volume of the solid generated when R is rotated about the horizontal line y = 1.
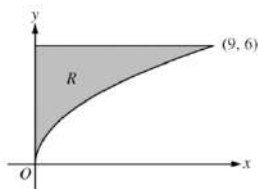

2010 Form B BC1

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

    a.   Find the volume of the solid generated when R is revolved about the horizontal line y = 8.

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.


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

2007 Form B BC 1

Let R be the region bounded by the graph of $y = e^{2x-x^2}$ and the horizontal line $y = 2$, and let S be the

region bounded by the graph of $y = e^{2x-x^2}$ and the horizontal line $y = 1$ and $y = 2$, as shown in the graph.

a. Write, but do not evaluate, an integral expression that gives the volume of the solid generated when R is rotated about the horizontal line $y = 1$.
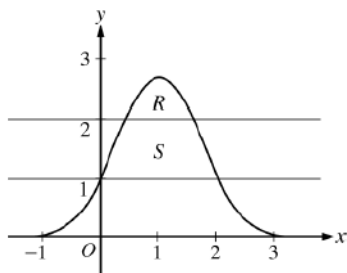
2007 BC 1

Let R be the region in the first and second quadrants bounded above by the graph of $y = \dfrac{20}{1+x^2}$ and

below by the horizontal line $y = 2$.

a. Find the volume of the solid generated when R is rotated about the x-axis.