1980 AB1

Let R be the region enclosed by the graphs of $y = x^3$ and $y = \sqrt{x}$.

(a) Find the area of R.

(b) Find the volume of the solid generated by revolving R about the x-axis.

1981 AB2

Let R be the region in the first quadrant enclosed by the graphs of $y = 4 - x^2$, $y = 3x$, and the y-axis.

(a) Find the area of region R.

(b) Find the volume of the solid formed by revolving the region R about the x-axis.

1985 AB3

Let R be the region enclosed by the graphs of $y = e^{-x}$, $y = e^{x}$, and $x = \ln 4$.

(a) Find the area of R by setting up and evaluating a definite integral.

(b) Set up, but do not integrate, an integral expression in terms of a single variable for the volume generated when the region R is revolved about the x-axis.

(c) Set up, but do not integrate, an integral expression in terms of a single variable for the volume generated when the region R is revolved about the y-axis.

1987 AB3

Let R be the region enclosed by the graphs of $y = (64x)^{\frac{1}{4}}$ and $y = x$.

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

(b) Set up, but do not integrate, an integral expression in terms of a single variable for the volume of the solid generated when region R is revolved about the y-axis.

1988 AB3

Let R be the region in the first quadrant enclosed by the hyperbola $x^2 - y^2 = 9$, the x-axis, and the line $x = 5$.

(a) Find the volume of the solid generated by revolving R about the x-axis.

(b) Set up, but do not integrate, an integral expression in terms of a single variable for the volume of the solid generated when R is revolved about the line $x = -1$.