Let R be the region in the first quadrant bounded by the $x - axis$ and the graphs of $y = \ln x$ and $y = 5 - x$ as shown in the figure to the right.
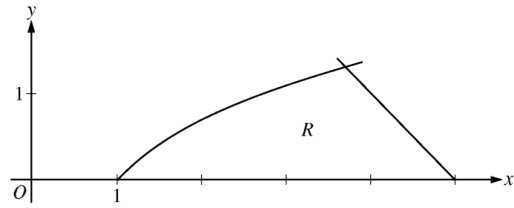
Find the point of intersection.

1. _____

Find the area of R.

2. _____

Region R is the base of a solid. For the solid, each cross section perpendicular to the x-axis is a square. What is the volume of the solid.

3. _____

Region R is the base of a solid. For the solid, each cross section perpendicular to the $y - axis$ is a semi-circle. What is the volume of the solid.
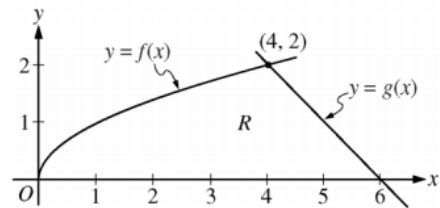
4. _____

Sum: _____

The functions f and g are given by $f(x) = \sqrt{x}$ and $g(x) = 6 - x$. Let R be the region bounded by the $x - axis$ and the graphs of f and g as shown.

Find the area of the region R.

1. _____

Find the volume of the solid rotated around the $y = axis$.

2. _____

Find the volume of the solid rotated around the line $x = 6$.

3. _____

The region R is the base of a solid. For each y, where $0 \le y \le 2$, the cross section taken perpendicular to the $y - axis$ is a rectangle whose base lies in R and whose height is $2y$. Find the volume of the solid.
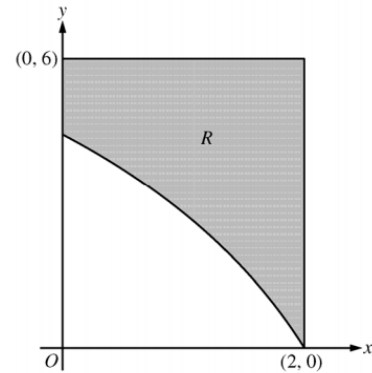
4. _____

Sum: _____

In the figure, 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 $x = 2$.

Find the area of R.

1. _____

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

2. _____

Find the volume of the solid when R is revolved about the $x - axis$.

3. _____

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

4. _____

Sum: _____