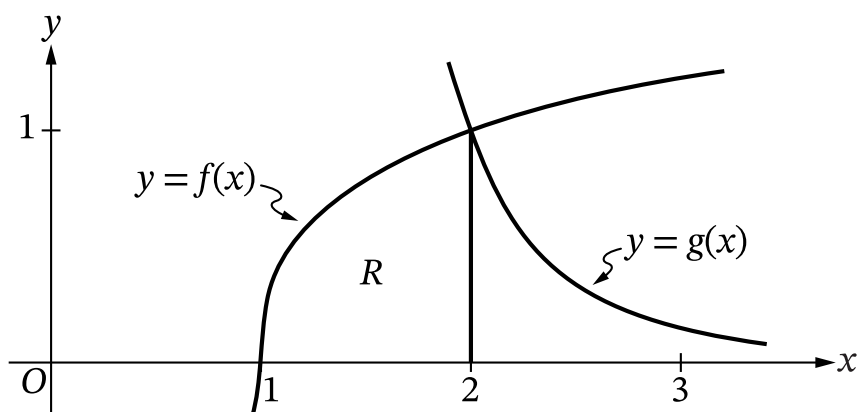


5. Let f be the function defined by $f(x) = \sqrt[3]{x-1}$, and let g be the function defined by $g(x) = e^{(-2x+4)}$. The graphs of f and g intersect at the point $(2, 1)$. Let R be the region bounded by the graph of f , the x -axis, and the vertical line $x = 2$, as shown in the figure.

**Part A**

Evaluate $\int_1^2 f(x) dx$. Show the work that leads to your answer.

Part B

Write, but do not evaluate, an expression involving one or more integrals that gives the volume of the solid generated when region R is rotated about the x -axis.

Part C

Write, but do not evaluate, an expression involving one or more integrals that gives the perimeter of region R .

Part D

Evaluate $\int_2^\infty g(x) dx$. Show the work that leads to your answer.