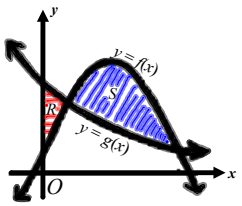
AP Test Question
2005
Part A - With Calculator

1) Let f and g be functions given by $f(x) = \frac{1}{4} + \sin(\pi x)$ and $g(x) = 4^x$.
Let R be the shaded region in the first quadrant enclosed by the y-axis and the graphs of f and g, and let S 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. **0.065 units^2**

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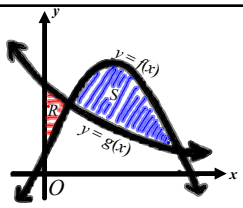

b) Find the area of S. **0.411 units^2**

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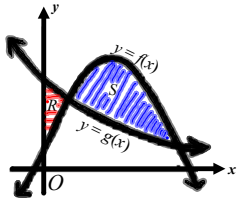

c) Find the volume of the solid generated when S is revolved around the horizontal line $y = -1$. **4.558 units^3**