
Complete the following problems. Show all work to receive full credit. Set up, but DO NOT INTEGRATE, the integrals necessary to compute the following volumes.

1. Find the volume of the solid obtained by revolving the region bounded by $y = 4 - x^2$ and $y = 2 - x$ about the x -axis.

$$= \int_{-1}^2 \pi ((4 - x^2)^2 - (2 - x)^2) dx$$

2. Find the volume of the solid obtained by revolving the region in the first quadrant bounded by $y = x^2$ and the line $y = 1$ about the line $y = 2$.

$$\int_0^1 \pi ((2 - x^2)^2 - 1^2) dx$$

3. Find the volume of the solid obtained by revolving the region bounded by e^{y^2} , $y = 0$, $x = 0$, and $y = 1$ about the x -axis.

$$= \int_0^1 2\pi y e^{y^2} dy$$