

1. Evaluate $I = \int_1^e \frac{1}{x(1+2 \ln x)^2} dx$.

2. Evaluate the area of the region enclosed by the curves $y^2 = 4 - x$ and $x + 2y = 1$.

(Just set up the integration formula)

3. Find the value of $I = \int_{-2}^0 (x + 1)^5 \tan(x + 1) dx$.

4. The region bounded by the parabolas $y^2 = x$ and $y = x^2$ is rotating about the line $x = 2$, find the volume of the resulted solid.
(Just set up the integration formula)