

1. Find the average value of $f(x) = |x|$ on the interval $[-2, 5]$.
2. Let R be the region bounded by the x -axis, the vertical lines $x = 1$, $x = 2$, and the curve $y = 1/(x^2 + 4x + 3)$.
 - (a) Sketch the region R and compute its area using integration.
 - (b) Find the volume of the solid obtained by revolving R about the x -axis.
3. Evaluate $\int \frac{1}{x^7-x} dx$. The method of partial fractions applies, but this is brutal. Instead begin with a substitution and then use partial fractions.