

① ∂D is parametrized by $x = t - t^3$, $y = t^2 - t$ from $t=0$ to $t=1$. HW 48



Find the center of mass of D .

Hint: What does Green's Theorem say

about $\int_{\partial D} x \, dy$, $\int_{\partial D} \frac{x^2}{2} \, dy$, and $\int_{\partial D} xy \, dy$?

② Find $\int_C \left(\frac{dx}{y} - \frac{dy}{x} \right)$ where C is the square loop from $(5,2)$ to $(7,2)$ to $(7,4)$ to $(5,4)$ to $(5,2)$.

Hint: $\partial D = C$ for what region D ?