

ALM-8 (Puzzle, Enigma, Contradiction)

CO-4

1. Evaluate $\int_C \vec{F} \cdot d\vec{r}$, where $\vec{F} = x^2 y^2 \vec{i} + y \vec{j}$ and the curve $y^2 = 4x$ in the xy-plane from $(0,0)$ to $(4,4)$.
2. Apply Green's theorem to evaluate the integral $\int_C [(3x - 8y^2) dx + (4y - 6xy) dy]$, where C is the boundary of the region bounded by $x=0, y=0$ and $x+y=1$.