

**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  $x + y = 1$ .