

Show all work. 5 points each.

1. a) Determine if $\mathbf{F} = \langle 2xy^2 + 1, 2x^2y \rangle$ is a conservative vector field or not. WHY?

b) Evaluate $\int_C \mathbf{F} \cdot d$ where C is the arc of the parabola $y = \frac{x^2}{4}$ from $(0,0)$ to $(2,1)$.