Math 251
Quiz 9 November 21, 2016

Name:

By handing in this quiz you assert that you understand and have followed IIT's guidelines for academic integrity.

Consider the vector field $\vec{F}(x, y) = \langle 2xy + 1, x^2 + \pi \cos(\pi y) \rangle$ and the curve C that is the part of the parabola $x = y^2$ oriented from $(1, -1)$ to $(1, 1)$.

(1) Evaluate $\displaystyle\int_C \vec{F} \bullet \vec{dr}$ DIRECTLY.

(2) $\vec{F}$ is conservative; find a potential function for it.

(3) Verify your answer to part (1) using the Fundamental Theorem of Line Integrals.