

“QUIZ” for Nov. 30, 2009

NAME: (print!) _____ **Section:** _____

E-MAIL ADDRESS: (print!) _____

1. Determine whether or not the vector field is conservative. If it is, find a function f such that $\mathbf{F} = \nabla f$.

$$\mathbf{F}(x, y, z) = (3x^2y^3z^3 + yz)\mathbf{i} + (3x^3y^2z^3 + xz)\mathbf{j} + (3x^3y^3z^2 + xy)\mathbf{k}$$

2. Evaluate

$$\int_C 5y \, dx + 10x \, dy \quad ,$$

where C is the closed curve consisting of the boundary of the rectangle

$$\{(x, y) \mid 0 \leq x \leq 1 \quad , \quad 0 \leq y \leq 1\}.$$