

QUIZ 11 MATH 232, CALCULUS III, FALL 2016 NAME:

Show all your work to receive full credit.

1. Sketch the vector field $F(x, y) = -\frac{1}{2}\mathbf{i} + (y - x)\mathbf{j}$ by plotting 5 points/vectors. Choose one point from each quadrant and an additional fifth of your choosing.

2. Evaluate $\int_C e^x dx + e^y dy$ where C is the arc of $x = y^3$ from $(-1, -1)$ to $(1, 1)$.

3. Let $F(x, y) = -e^y \sin(x)\mathbf{i} + e^y \cos(x)\mathbf{j}$.

(a) Find a function f such that $F = \nabla f$

(b) Evaluate $\int_C F \cdot d\mathbf{r}$ where $r(t) = \langle t, t + 1 \rangle$, $0 \leq t \leq \pi$.