

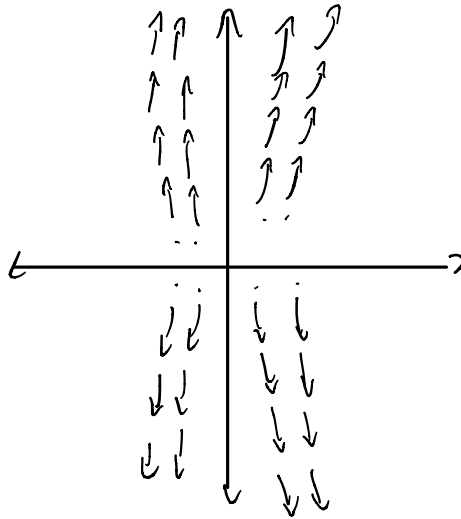
"QUIZ" for Lecture 17

NAME: (print!) Fady Besada Section: 22

E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q17FirstLast.pdf) ASAP BUT NO LATER THAN Nov. 5, 8:00pm

1. Sketch the vector planar vector field

$$\mathbf{F} = \langle x, y^2 \rangle .$$



2. Find a potential function for the vector field \mathbf{F}

$$\mathbf{F} = \langle y \cos(xy), x \cos(xy) \rangle .$$

$$\rightarrow \mathbf{F} = \nabla \phi$$

$$\rightarrow \frac{dF_1}{dy} = \frac{dF_2}{dx}$$

$$\rightarrow \frac{d\phi}{dx} = y \cos(xy), \quad \frac{d\phi}{dy} = x \cos(xy)$$

$$\rightarrow \phi_x = y \cos(xy), \quad \phi_y = x \cos(xy)$$

$$\rightarrow \phi(x, y) = \sin(xy)$$