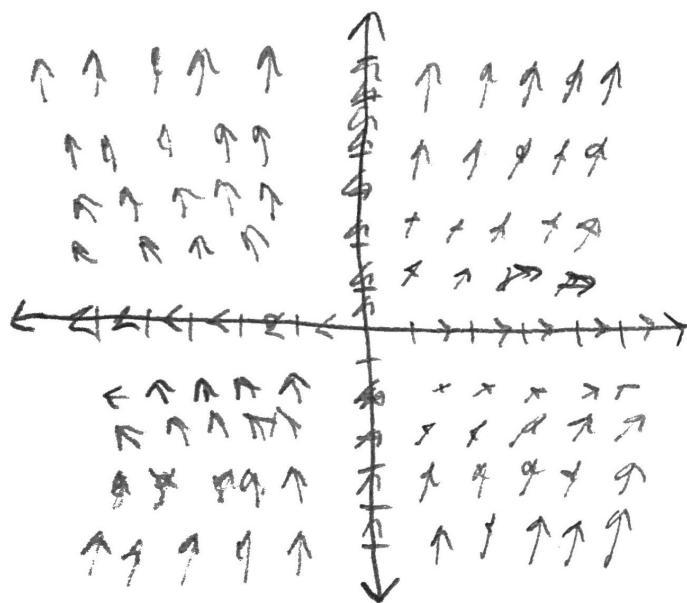NAME: (print!) Aditya Sivakumar   Section: 24

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

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

2. Find a potential function for the vector field **F**

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

$$F_2 \quad \frac{\partial}{\partial x}(x\cos xy) = \cos xy - xy\sin(xy)$$

$$F_1 \quad \frac{\partial}{\partial y}(y\cos xy = \cos xy - xy\sin(xy)$$

$$\frac{\partial f}{\partial y} = x\cos xy + g' = x\cos xy \quad g' = 0$$

$$g = c$$

$$F_2 = F_1 \text{, conservative}$$

$$f(x,y) = \int y\cos xy \, dx$$

$$\boxed{f(x,y) = \sin yx + c}$$

$$= \sin yx + g(y)$$