

"QUIZ" for Lecture 17

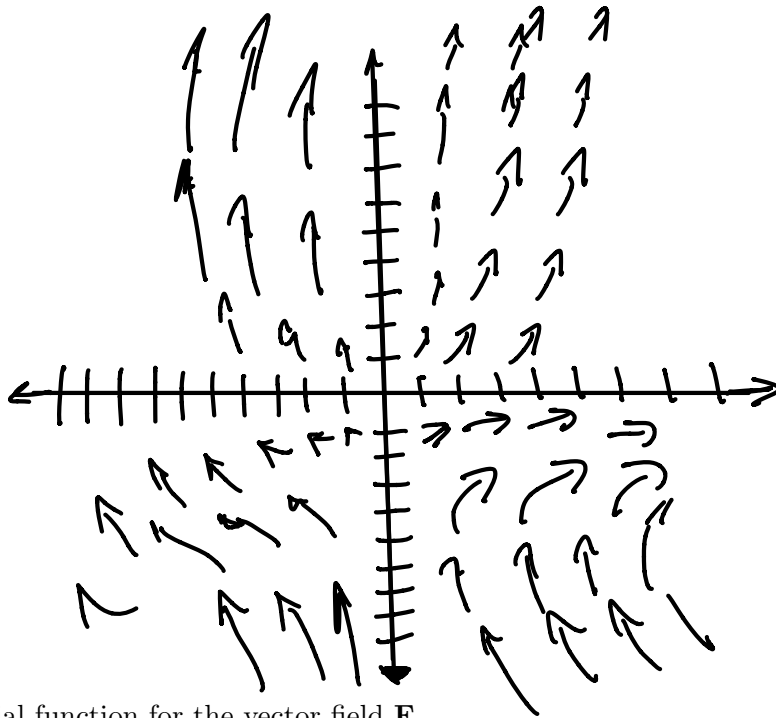
NAME: (print!) Joe Barr

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

$$F = \langle x, y^2 \rangle$$



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

$$F = \langle y \cos(xy), x \cos(xy) \rangle$$

$$F = \nabla f = \langle f_x, f_y \rangle$$

$$\frac{\partial}{\partial x} f_x = F_x \Rightarrow \int \frac{d}{dx} f dx = \int F_x dx = \int y \cos(xy) dx = \sin(xy) + C_1 \quad C_1 = C_2 = 0$$

$u = xy$   
 $du = y dx$

$$\frac{\partial}{\partial y} f_y = F_y \Rightarrow \int \frac{d}{dy} f dy = \int F_y dy = \int x \cos(xy) dy = \sin(xy) + C_2$$

$$f = \sin(xy)$$

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