"QUIZ" for Lecture 17

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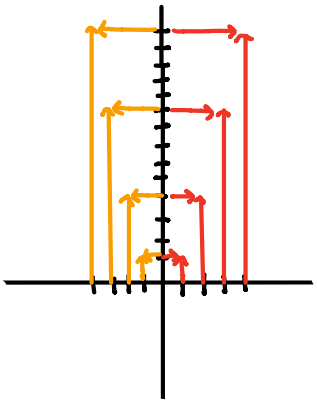
E-MAIL SCANNED .pdf OF COMPLETED QUIZ to DrZcalc3@gmail.com (Attachment: q17FirstLast.pdf) ASAP BUT NO LATER THAN Nov. 5, 8:00pm

1. Sketch the vector planar vector field

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



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

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

curl F = $\nabla \times F = \begin{vmatrix} \frac{\partial}{\partial x} & \frac{\partial}{\partial y} \\ y\cos(xy) & x\cos(xy) \end{vmatrix} = \frac{\partial}{\partial x}(x\cos(xy)) - \frac{\partial}{\partial y}(y\cos(xy))$

$= -y\sin(xy) + x\sin(xy)$

$= \sin(xy)(x-y)$ → not conservative