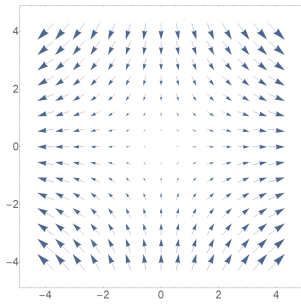
MATH 2023 – Multivariable Calculus

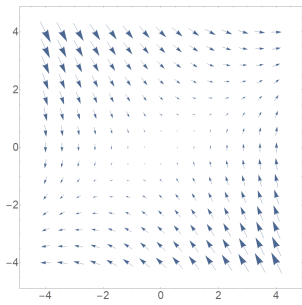
Lecture #13 Worksheet ♭ March 26, 2019

Problem 1. Identify vector fields $\mathbf{F}(x, y)$:

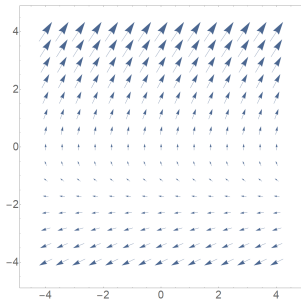
A



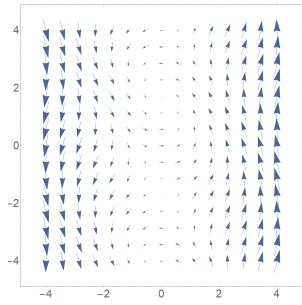
B



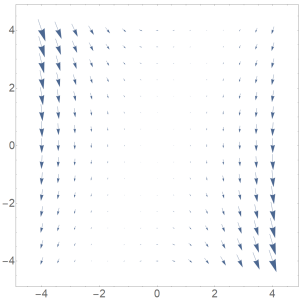
C



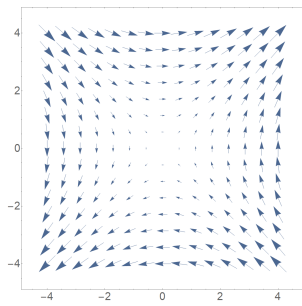
D



E



F



$\langle \cos(x+y), x \rangle$	$\langle y, y+2 \rangle$	$\langle x, -y \rangle$	$\langle y, x \rangle$	$\langle y, x-y \rangle$	$\langle y^2 - 2xy, 3xy - 6x^2 \rangle$
D	C	A	F	B	E

Problem 2. (a) Evaluate the line integral

$$\int_C (2 + x^2 y) ds$$

where C is the upper half unit circle going counterclockwise.

(b) Evaluate the line integral

$$\int_C y^2 dx + x dy$$

where C is a curve from $(-5, -3)$ to $(0, 2)$

- Along a straight line
- Along the x and y direction passing through $(0, -3)$
- Along the curve $x = 4 - y^2$