

Math 1200 Lecture 13

Oct 15 2026

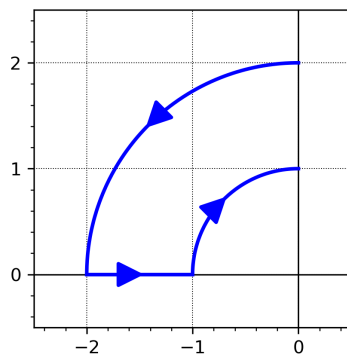
Topics: 16.1-16.2: Vector fields, scalar line integrals Name:_____

Collaborators:_____

Group work 1 Evaluate the following scalar line integrals

a) Calculate $\int_C f ds$ where $f(x, y) = xy^2$ where C is a straight line from $(0, 1)$ to $(3, 3)$.

b) Evaluate $\int_C f ds$ where $f(x, y) = x$ where C is the curve in the following figure



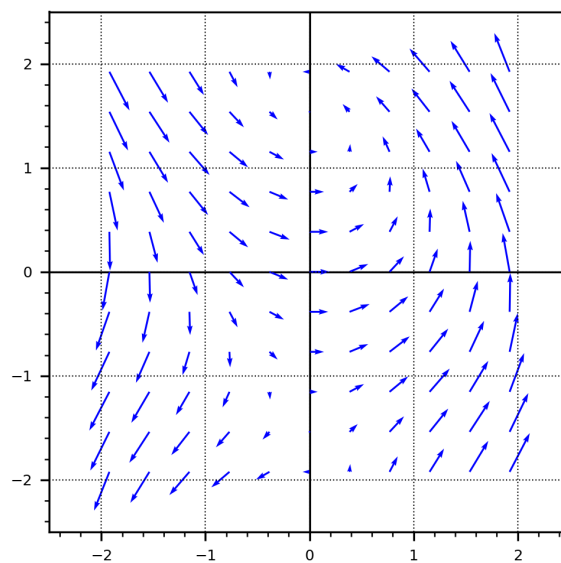
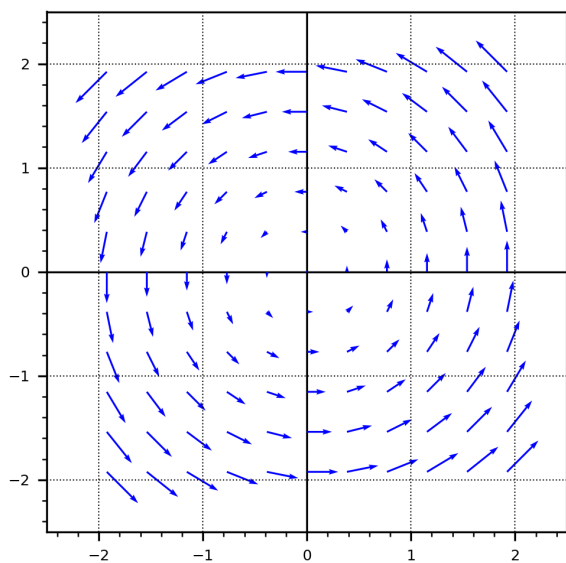
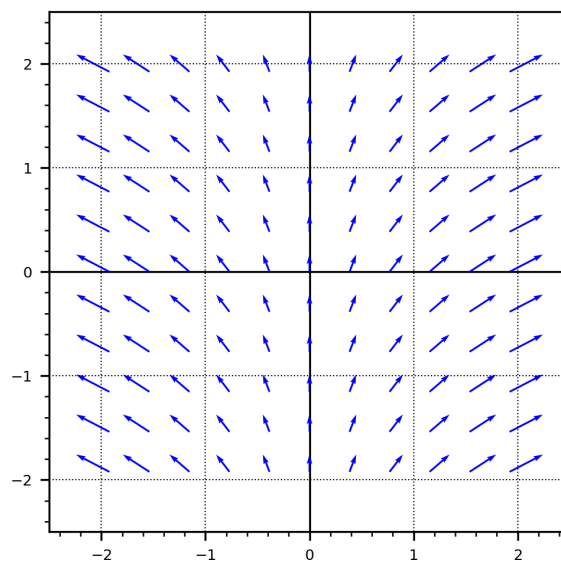
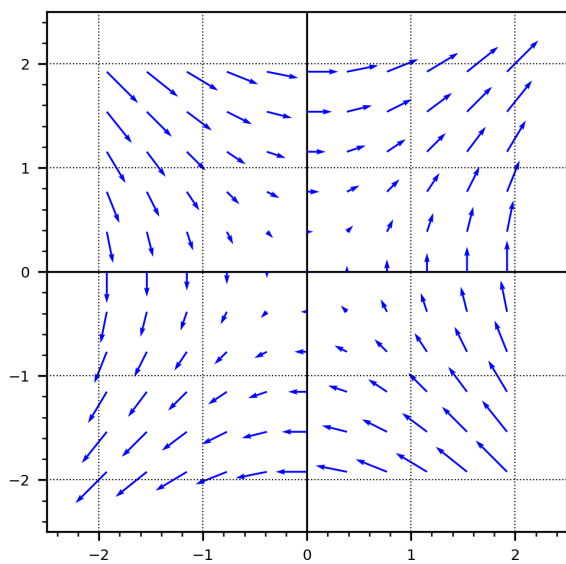
Group work 2 Match the following vector fields with their corresponding plots

(A) $\vec{F}(x, y) = \langle \cos(x + y), x \rangle$

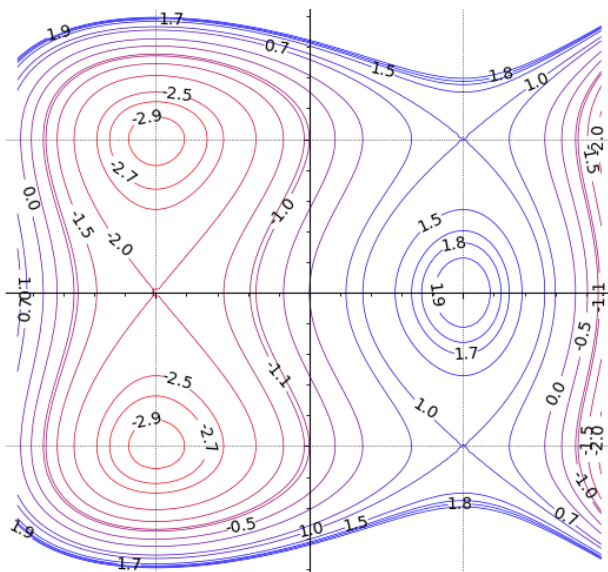
(B) $\vec{F}(x, y) = \langle y, x \rangle$

(C) $\vec{F}(x, y) = \langle -y, x \rangle$

(D) $\vec{F}(x, y) = \langle x, 1 \rangle$



Group work 3 Draw the gradient vector field of the function whose contour plot is shown below



Group work 4 Plot the following vector fields: (a) : $\vec{F}(x, y) = \left\langle \frac{x}{\sqrt{x^2+y^2}}, \frac{y}{\sqrt{x^2+y^2}} \right\rangle$,
 (b) $\vec{F}(x, y) = \nabla f(x, y)$ with $f(x, y) = x^2/2 + xy + y$

