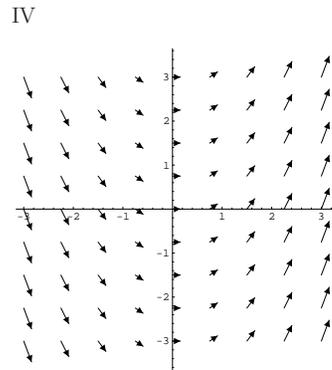
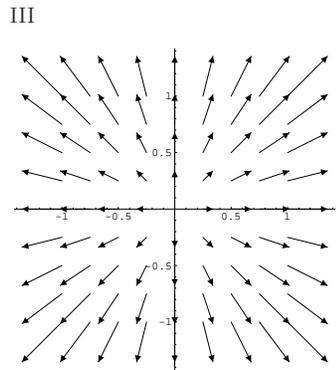
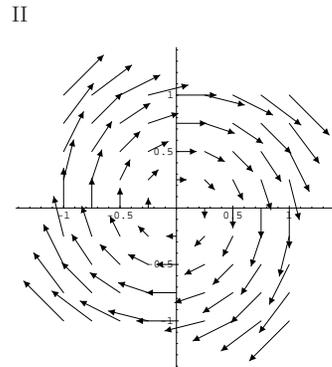
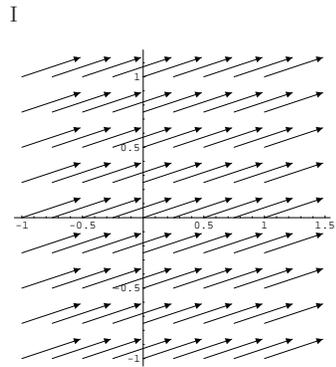
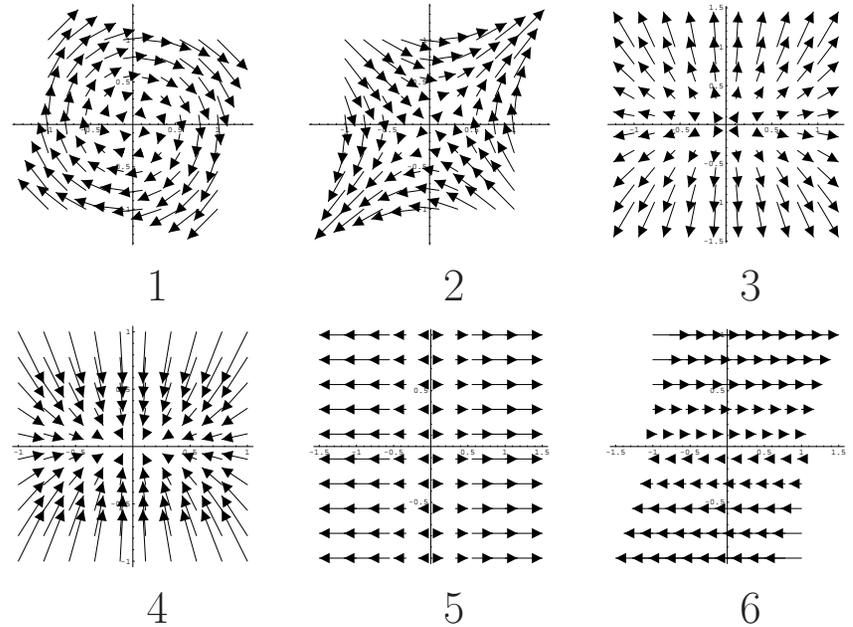


Check the box which match the formulas of the vector fields with the corresponding picture I,II,III or IV.

Vectorfield	I	II	III	IV
$\vec{F}(x, y) = \langle 1, x \rangle$				
$\vec{F}(x, y) = \langle 3y, -3x \rangle$				
$\vec{F}(x, y) = \langle 7, 2 \rangle$				
$\vec{F}(x, y) = \langle x, y \rangle$				



Match the vector fields and decide, which are gradient fields.



$F(x, y)$	1	2	3	4	5	6
$F(x, y) = (y, -x)$						
$F(x, y) = (x, 2y)$						
$F(x, y) = (y, x)$						
$F(x, y) = (x, 0)$						
$F(x, y) = (-x, -2y)$						
$F(x, y) = (y, 0)$						

LINE INTEGRALS

Math 21a, Fall 2008

Given a vector field $\vec{F} = \langle yx, x \rangle$ and a curve $C : \vec{r}(t) = \langle \cos(2t), \sin(2t) \rangle$ for $t \in 0, \pi$. Find the line integral $\int_C \vec{F} \cdot d\vec{r}$.

GRADIENT FIELDS ?

Math 21a, Fall 2008

Which of the following vector fields are gradient fields?

Enter I,II,III,IV,V,VI,VII,VIII here	Equation
	$\vec{F}(x, y) = \langle x^2, y^2 \rangle$
	$\vec{F}(x, y) = \langle y^2, x^2 \rangle$
	$\vec{F}(x, y) = \langle 5, 6 \rangle$
	$\vec{F}(x, y) = \langle (0, \sin(\sin(x))) \rangle$
	$\vec{F}(x, y) = \langle (0, \sin(\sin(y))) \rangle$
	$\vec{F}(x, y, z) = \langle x, y, z \rangle$
	$\vec{F}(x, y, z) = \langle -y, x, 1 \rangle$

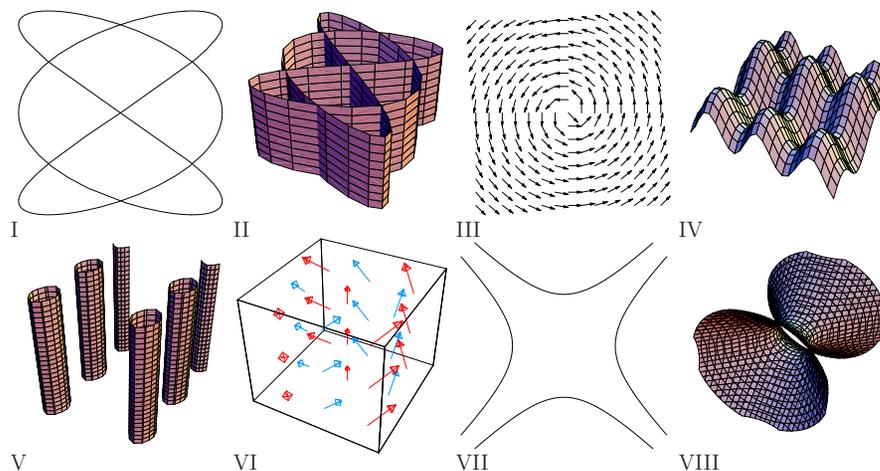
FUNDAMENTAL THEOREM OF LINE INTEGRALS
Math 21a, Fall 2008

OBJECTS

Math 21a, Fall 2008

The parametrized curve $\vec{r}(t) = \langle (1 + \cos^3(\theta)), (1 + \sin^3(\theta)) \rangle$, where θ goes from 0 to 2π is called the **asteroid**. Find the line integral of the vector field $\vec{F}(x, y) = \langle x, y \rangle$ along the asteroid.

Match the objects with the pictures.



Hint. If you are in a Tue Th section, you might not have seen the short cut already.

Enter I,II,III,IV,V,VI,VII,VIII here	Equation
	$x^2 - y^2 + z^2 = 1$
	$\vec{r}(t) = \langle \cos(3t), \sin(2t) \rangle$
	$z = f(x, y) = \cos(3x) + \sin(2y)$
	$\vec{F}(x, y) = \langle -y/\sqrt{x^2 + y^2}, x/\sqrt{x^2 + y^2} \rangle$
	$\cos(3x) + \sin(2y) = 1$
	$\vec{F}(x, y, z) = \langle -y, x, 1 \rangle$
	$\vec{r}(u, v) = \langle \cos(3u), \sin(2u), v \rangle$
	$\{(x, y) \in \mathbf{R}^2 \mid x^2 - y^2 = 1\}$