

Curl and Rotation

Math 3335

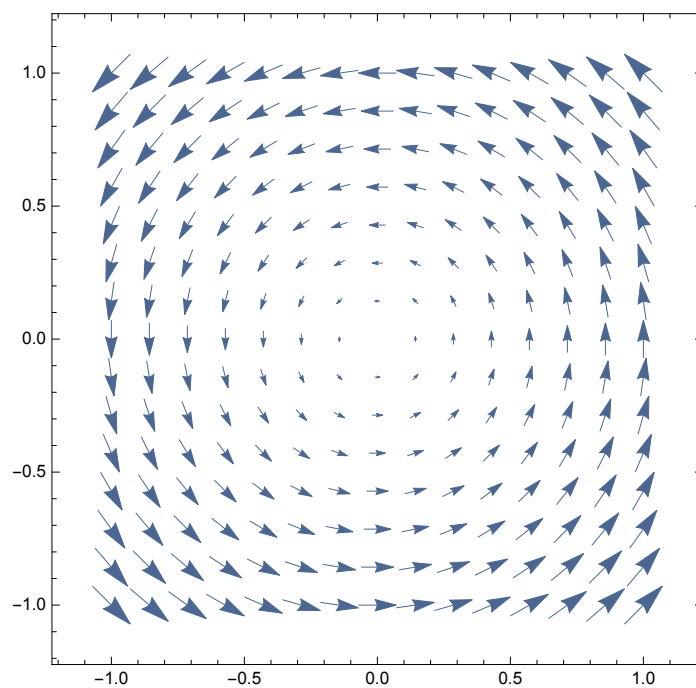
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10/27/16

|

```
f[x_, y_] = {-y, x}  
VectorPlot[f[x, y], {x, -1, 1}, {y, -1, 1}]
```

$\{-y, x\}$

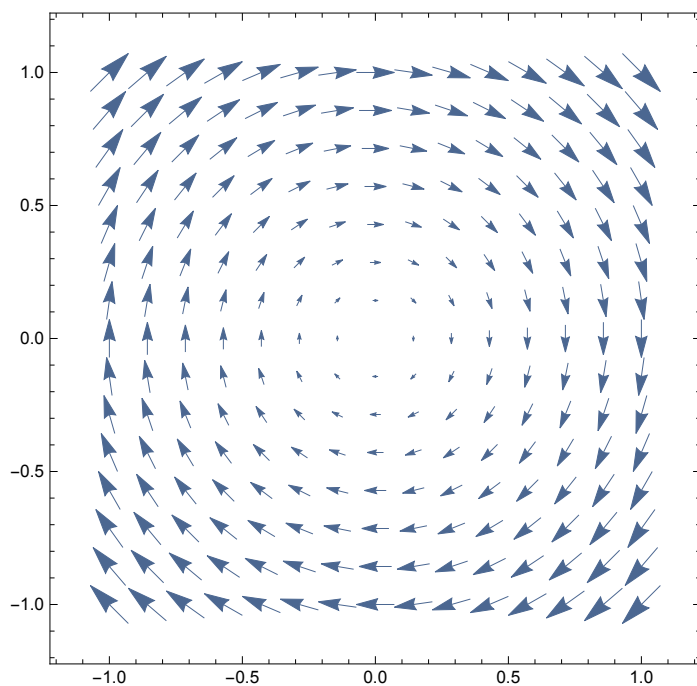


```
Curl[f[x, y], {x, y}]
```

2

2

```
f[x_, y_] = {y, -x}
VectorPlot[f[x, y], {x, -1, 1}, {y, -1, 1}]
{y, -x}
```



```
Curl[f[x, y], {x, y}]
-2
```

3

```
f[x_, y_] = {y, -x} / (x^2 + y^2)
VectorPlot[f[x, y], {x, -1, 1}, {y, -1, 1}];
{
  y / (x^2 + y^2), -x / (x^2 + y^2)
}

Curl[f[x, y], {x, y}]
2 x^2 / (x^2 + y^2)^2 - 2 / (x^2 + y^2) + 2 y^2 / (x^2 + y^2)^2

Simplify[%, Assumptions -> Not[{x, y} == {0, 0}]]
0
```