

Creating Vector Fields

The Formatting is basically the same as creating a 3-D graph but a little different, The First 2 lines are the same but instead of defining $f(x,y)$ and M we define the x and y components of the vector field.

For example in the case of gradient fields for the two array elements: $X_{i,j}$ is $\partial f / \partial x$ and $Y_{i,j}$ is $\partial f / \partial y$. We Plot (X,Y) in the placeholder.

But this is the same for any vector field (2space only)

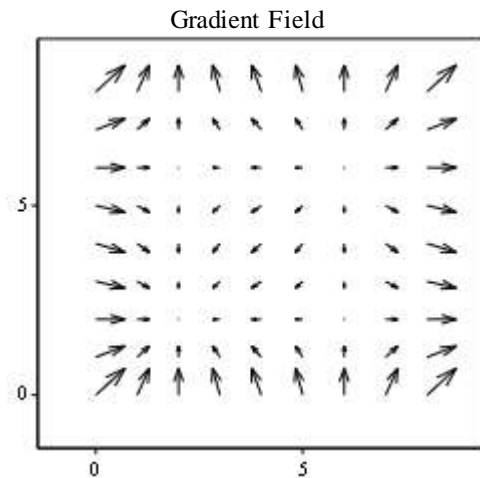
Even though we get a vector field plot in the plane we still use the 3D Surface Plot

In the FORMAT window under GENERAL we choose VECTOR FIELD PLOT instead of Surface Plot

```
a := -2  b := 2  c := -2  d := 2  Δx := .5  Δy := .5
```

```
i := 0..  $\frac{b-a}{\Delta x}$   j := 0..  $\frac{d-c}{\Delta y}$   xi := a + i·Δx  yj := c + j·Δy
```

```
Xi,j := 3·(xi)2 - 3  Yi,j := 3·(yj)2 - 3
```



(X, Y)

Make sure to use the parentheses.