

## An Introduction to *Mathematica 6.0* for Direction Field Plots Feb.18th,2009

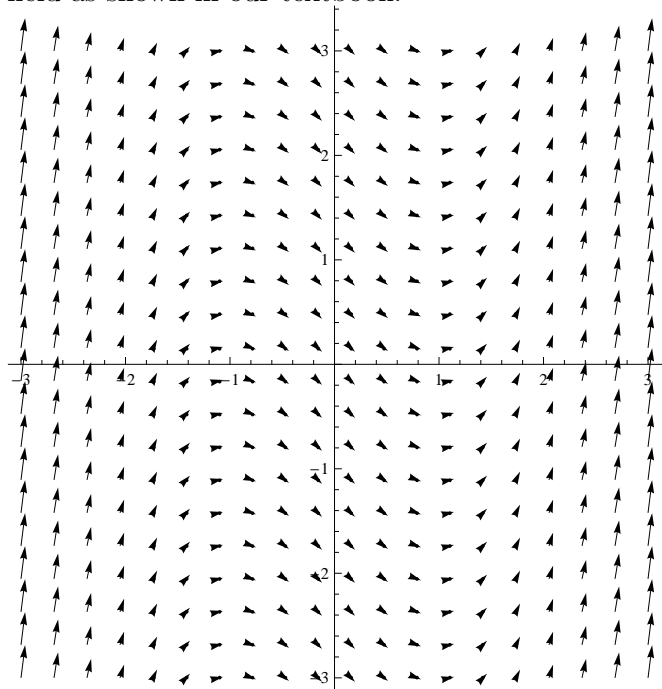
1. *Mathematica 6.0* is already loaded on all ITaP machines as standard software. To access *Mathematica 6.0* from any ITaP machine:  
Start → All programs → Standard Softwares → Computational Packages → *Mathematica 6.0* → *Mathematica 6.0* .
2. You may also access *Mathematica 6.0* via Software Remote by ITap, or through the Citrix Client :  
<https://goremove.ics.purdue.edu/Citrix/AccessPlatform/site/default.aspx>
3. **Notebooks:** Mathematica documents are called "notebooks". They can contain text, commands, and graphics. All entries appear in "cells" which are delineated by brackets at the right side of the page. For example, once you input  $2+2$ , press the enter key on the number pad at the lower right side of the keyboard (NOT the return key on a Macintosh or the Enter key next to the single and double quote marks on a Windows machine!), 4 will show up in the following line. You can also use shift+Enter if you don't have the small number pad. Save this file as **.nb** file with any name you like so that you can review next time.
4. **Direction Field Plot**

For example, #35 on page 550,  $y' = x^2 - 1$ , we use these commands:

```
<< VectorFieldPlots';
```

```
VectorFieldPlot[{1, x^2-1}, {x, -3, 3}, {y, -3, 3}, PlotPoints → 20, Axes → True]
```

(The first line is needed all the time here!) Then we will get the same direction field as shown in our textbook:



Please look at the screen printout of our notebook from *Mathematica 6.0*.

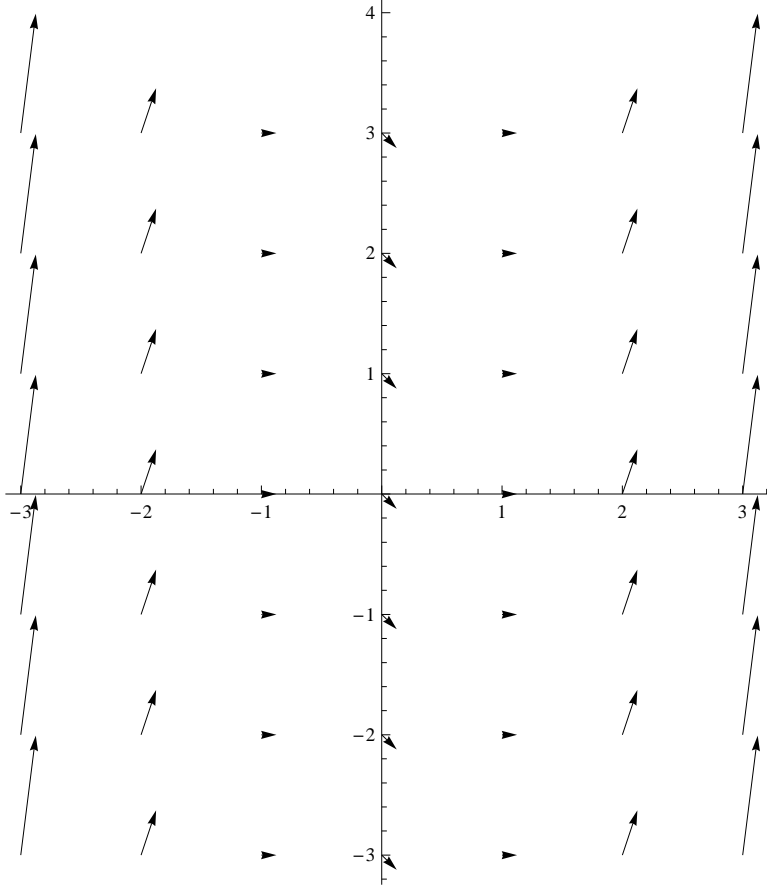
In[1]:= 2 + 2

Out[1]= 4

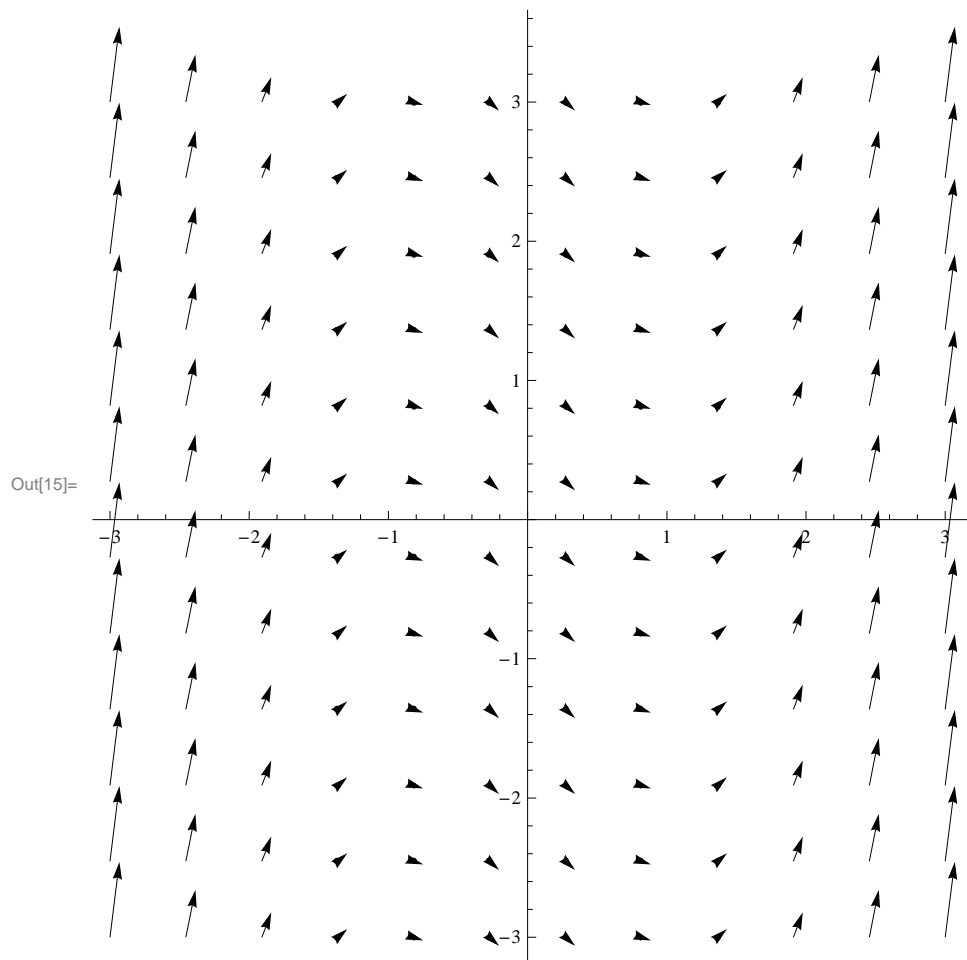
In[12]:= << VectorFieldPlots`;

VectorFieldPlot[{1, x^2 - 1}, {x, -3, 3}, {y, -3, 3}, PlotPoints -> 7, Axes -> True]

Out[13]=



```
In[14]:= << VectorFieldPlots`;  
VectorFieldPlot[{1, x^2 - 1}, {x, -3, 3}, {y, -3, 3}, PlotPoints -> 12, Axes -> True]
```



```
In[16]:= << VectorFieldPlots`;  
VectorFieldPlot[{1, x^2 - 1}, {x, -3, 3}, {y, -3, 3}, PlotPoints -> 20, Axes -> True]
```

Out[17]=

