

Plotting slope fields with Maple

Math 221 Section 5 Fall 2009

After starting up Maple, click on “File” on the upper left corner, and in the File menu choose New and then Worksheet mode. A new window will appear inside Maple. In this window, you first need to input:

```
with(DEtools);
```

To plot the slope field of the DE $y' = f(x, y)$ together with a trajectory for the IVP with $y(x_0) = y_0$, you can follow the pattern:

```
DEplot(diff(y(x),x)=f(x,y(x)),y(x),x=-3..3,[[y(x_0)=y_0]],  
y=-1..1,stepsize=.1,linecolor=black,color=black);
```

where you input a function for $f(x, y(x))$, input the numbers for the initial value x_0 and y_0 . Next adjust the ranges of the x and y values to put on the axes of the graph, and adjust the stepsize, to get a plot that shows a good view of the initial point and the behavior of the slope field and trajectory. (You can plot several slope fields over various intervals to capture all characteristics of the plot.)

Mathlab: Maple is provided for your use on the computers in the Mathlab in Avery 18. The Mathlab schedule can be found at www.math.unl.edu/resources/computer/labs/. You will need to log in with your UNL active directory account name and password (the account name has the form (first initial)(last name)(number)). If you have lost your password, you can choose a new one at <https://adactivation.unl.edu/student.php>.