

## Direction Fields (Slope Fields) - dfield7

- The routine **dfield7** is already loaded on all ITaP machines as standard software.  
To access MATLAB from any ITaP machine:

Start→All Programs→Standard Software→Computational Packages→MATLAB7.3→MATLAB7.3

(If you are using your own copy of MATLAB you may need to download **dfield7** from <http://math.rice.edu/~dfield>)

- You may also access MATLAB (Matlab 7) through the *Citrix Client* :

<https://goremote.ics.purdue.edu/Citrix/MetaFrame/site/default.aspx>

- To access **dfield7**, at a MATLAB prompt type: **dfield7**
- A popup window will appear (see below).
- Correctly enter your differential equation (you may need to change the names of the independent and dependent variables) and enter the range of values of the independent and dependent variables. Hit **Proceed** and a graphics window will appear with the slope field of your differential equation. Click the mouse at any point and the corresponding solution curve will be plotted.
- There are several options available in the graphics display window: printing, keyboard input of initial conditions, inserting text, erasing solutions, zoom, etc.
- You may have up to four (4) parameters to quickly vary your differential equation (rather than having to type in several differential equations). For example, if you wanted to see the slope fields for  $y' = Ax + By^2$  for the values  $A = 0, 1, 2$  and  $B = -0.1, 0.0, 0.1$ , you only need to type in one equation and simply vary the parameters  $A$  and  $B$  in the appropriate boxes.

