Using Grapher on Macs to draw Slope Fields.

Suppose that we want a computer generated slope field for the differential equation y'=y-t

1. Go to a Mac that's not too old and find Grapher under the Applications -> Utilities Folder. Double-click to start it. Select 2D.

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2. Under the Equation menu, select "New Equation From Template". Choose "Vector Field" and "Explicit Cartesian".

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Explicit Car	tesian	$\Delta \begin{bmatrix} x \\ y \end{bmatrix}$				
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3. You will see the following formula bar:



4. In the blank spot on the top (where the cursor is in the picture) put a 1. In the second spot, put the formula for y' (in this example it is y-x). Notice that you should use an *x* rather than a *t*.

n	Equalize Axes						
	$\Delta \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ y - x \end{bmatrix}$						

5. Hit return and you should see the slope field.

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To Draw A Solution Curve to the DE.

6. Under the Equation Menu, go to "New Equation from Palette". Select "Differential Equation" and choose "1st order implicit"



7. You will see:



You will need to enter both the DE and an initial condition, as in the next screenshot. In this screenshot we have entered the DE y'=y-x and the initial condition y(0) = -0.5



9. Hit return, and you should see the solution curve. In the next screen shot, the solution curve is drawn on top of the slope field.

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Action Zoom In Zoom Out Center Origin Equations $\begin{array}{c} y = \\ y = \\ y = \\ y' = y - x, y(0) = -0.5 \end{array}$	y'=y-x, y(0)=-0.5 1 1	