TI-Nspire™ Handheld Script

Differential equations (Tutorial B7)

http://www.atomiclearning.com/k12/en/movie/85851/play_window?type=Tutorial&sid=2410

[00:00:00.00]
To graph differential equations, I'll start by pressing
the Home key, and then I'll choose the Graphs icon, to

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insert the Graphs application into a new page. Next I'll
press the Menu key, choose Graph Type, and then "Diff Eq"

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for Differential Equation. We'll start by graphing a first
order differential equation. In the entry line, I'll type

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-y1+x. Next we'll enter our initial condition. I'll press
the Tab key twice to highlight the field below the entry

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line, and enter 0, press the Tab key again, and enter 1.
Then we can press Enter, to see the plot. We can now make

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changes to the parameters if we want to. To do this, I'll
use the touchpad to move over to the double arrow on the

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left side, and click to show the entry line. Next, I'll
press the up arrow, to see the y1 equation. Then I'll use

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the Tab key to highlight the Edit Parameters button on
the right side, and press Enter. This brings up the parameters

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dialog box. I'll choose to change the solution method by
pressing the right arrow key, and then the down arrow key

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to select Runge Kutta, and press Enter. We'll press Enter
again to close the dialog box. And we can view the changes

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to the plot. We can also add an initial condition. I'll
press the Tab key to highlight the Add Initial Condition

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button at the bottom, and press the Enter key. In the dialog
box, we can add initial conditions, or edit our existing

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ones. I'll edit the initial condition by pressing the Tab
key to highlight "1" and typing in 2 instead. Then we can

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press Enter to close the dialog box, and view the changes
to the plot. Next we'll graph a second order differential

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equation. To do this, I'll first create a new problem by
pressing the Doc key, choosing insert, and then Problem.

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I'll then choose add Graphs to my new problem. I'll then
press the Menu key, choose graph type, and Diff Eq. I'll

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type my equation into the entry line, –y2. Next we'll enter
our initial condition. Press the Tab key twice to highlight

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the field just below the entry line, and enter 0, press
the Tab key again, and enter 1. I'll then press the down

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arrow to move to y2. I'll define this based on y1, so I'll
enter y1. Below the entry line, you can see that my initial

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condition is automatically inserted based on Y1. Next we'll
press the Tab key twice, and enter 0. We'll then press

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Enter to plot the equation. Let's edit the parameters for
this equation. I'll use the touchpad to move over to the

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double arrow on the left side, and click to show the entry line. The entry line is ready for our next equation, so

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I'll press the up arrow, to see the y2 equation. Then use the Tab key to highlight the Edit Parameters button on

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the right side, and press Enter, to open the dialog box. Using the Tab key, I'll highlight Field again, press the

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right arrow key, followed by the down arrow key and select direction. Then I'll press Enter, and then Enter again

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to close the dialog box. We can now view the updated plot.

[00:04:59.00]