Slope Field Program (TI-85)

This program graphs the slope field for differential equation \( \frac{dy}{dx} = f(x, y) \).

Name=SLOPE

Where To Find The Commands

:ClDrw GRAPH, DRAW
:FnOff GRAPH, VARS

:7(Xmax − Xmin)/83 → H
:7(Ymax − Ymin)/55 → K
:1/(0.4H)^2 → A
:1/(0.4K)^2 → B
:Xmin + 0.5H → x
:Ymin + 0.5K → Z
:1 → I

:Lbl P
:1 → J
:Z → y

:Lbl Q
:y1 → T
:1/√(A + B * T^2) → C
:T * C → S
:x → U
:y → V

:Line(U - C, V - S, U + C, V + S) GRAPH, DRAW

:V + K → y
:IS > (J, 8)

:Goto Q

:U + H → x
:IS > (I, 12)

:Goto P

To run this program:

1. Enter \( \frac{dy}{dx} = f(x, y) \) as y1 = f(x, y). Select y1 under the GRAPH menu. Note the variables x and y must be in lower case, entered by pressing 2nd, ALPHA, then X, or Y.
2. Choose an appropriate RANGE.
3. Run the program.
4. To get rid of previously drawn slope field, press ClDrw (from the DRAW menu) or change the RANGE.