Numerical Analysis — Problem Set 10 — Euler's Method

Due Tuesday, Nov. 22 (beginning of class)

In Chapter 5 of the HP-25 Applications Programs book, study the program on pp. 83-84.

1. HP's Example Program Using Euler's Method

Make sure that the example HP gives works as expected. Then, ...

(a) Continue making the table for the example program from x = 0 to x = 5. That is 41 data points.

(b) Graph the data accurately even thought this is not a very exciting function.

2. y'(x) = y cos(x+y) Using Euler's Method

2. Alter the program to do the following equation: y'(x) = y * cos(x + y). The calculator needs to be in radians mode. The initial condition is y(0) = 1 instead of y(1) = 1

(a) Make a table of the resulting function from x = 0 to x = 10 (101 data points). (I'm not sure how well this will work if you increase the step size to 0.2 which would make it only 51 data points.)

(b) Make a graph of the resulting function from x = 0 to x = 15. The vertical axis will need to go from about 0.0 to 1.25. This is a remarkable function.