

Computational Fluid Dynamics (AE/ME 339)
MAEEM Dept., UMR, Fall 2001

Home Work Problem 2

Consider an example in which $dy/dx = f(x,y)$ is a function of both x and y .

i. e., $f(x,y) = x+y$

subject to the initial condition, $y(x_0) = y_0$

Use Taylor series to determine $y(x_0+h)$ to 4th order accuracy. i. e., the truncation error, $\epsilon = O(h^5)$. (“ O ” means on the order of).

Use the following for your calculations.

Initial condition (IC): at $x=0$, $y=1$

Step size: $h = 0.1$

Show 5 significant digits in your answer.