Computational Fluid Dynamics (AE/ME 339)
MAE Dept., UMR

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 4^{th} order accuracy. i. e., the truncation error, $\varepsilon = O(h5)$. ("*O*" means "of order").

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.