Name:
CID:

Tutorial 3

Any marks received for the tutorial are only indicative and may be subject to moderation and scaling.

Exercise 1 (**Local truncation error of linear multistep methods**) % of CW mark: 1.0

Calculate the local truncation error of the 3-step Adams-Bashforth method

$$x_{n+1} = x_n + \frac{h}{12}\left(23f_n - 16f_{n-1} + 5f_{n-2}\right)$$

Exercise 2 (**Derivation of linear multistep methods**) % of CW mark: 3.0 Mastery Component

What is the local truncation error of the method

$$x(t_{n+1}) = x(t_n) + \int_{t_n}^{t_{n+1}} \left(\frac{(t-t_{n-1})(t-t_{n-2})}{2h^2} f_n - \frac{(t-t_n)(t-t_{n-2})}{h^2} f_{n-1} + \frac{(t-t_n)(t-t_{n-1})}{2h^2} f_{n-2} \right) dt\,.$$