Name:
CID:

Tutorial 5

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

Exercise 1 (**Linear difference equations**) % of CW mark: 2.0

Find the solution of the linear difference equations

$$x_{n+2} - 3x_{n+1} + 2x_n = 0, \quad x_{n+2} - 6x_{n+1} + 9x_n = 0$$

with the starting values $x_0 = a$, $x_1 = b$.

Exercise 2 (**Convergence**) % of CW mark: 2.0
Mastery Component

Apply the 2-step method

$$x_{n+2} - 4x_{n+1} + 3x_n = -2hf_n$$

with the starting values $x_0 = 1$, $x_1 = 1 + h$ to the initial value problem

$$x' = 0, \ x(0) = 1$$

and calculate the global error $|e_n| = |x(2) - x_n|$.
Is the method convergent?