

Difference Equations

Mathematics for Economists, Fall 2024-25

Homework Exercises Set 2

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1 Solve the following first order difference equations and determine their movement and stability:

a) $2y_{t+1} + 3y_t + 2 = 0; y_0 = 1$

b) $y_{t+1} - \frac{1}{2}y_t = t + 3; y_0 = 3$

2 Solve the following second order difference equations and determine their movement and stability:

a) $y_{t+2} - 5y_{t+1} + 6y_t = 4^t; y_0 = 1; y_1 = 2$

b) $y_{t+2} - 4y_{t+1} + 3y_t = t^2 + 2t; y_0 = 1; y_1 = 2$