



QUESTION WORKBOOK

Recurrence relations

Further Pure 2 · Year FM

6 questions · 21 marks

NAVY SCREEN EDITION

SECTION A · Warm-up**A1** Solve $u_{n+1} = 4u_n - 3$ with $u_1 = 2$. [3]**A2** Solve $u_{n+1} = 2u_n + n$ with $u_1 = 1$. [3]**SECTION B** · Standard**B1** Solve $u_{n+2} = 5u_{n+1} - 6u_n$ with $u_1 = 1$ and $u_2 = 4$. [4]

B2 Solve $u_{n+2} = 6u_{n+1} - 9u_n$ with $u_1 = 3$ and $u_2 = 18$. [4]

B3 Prove by induction that $u_n = 4^{n-1} + 1$ satisfies $u_{n+1} = 4u_n - 3$ with $u_1 = 2$. [3]

SECTION C · Stretch

C1 Solve $u_{n+2} + u_{n+1} - 6u_n = 12$ with $u_1 = -4$ and $u_2 = 10$. [4]