Assess your learning – Difference Equations Rate your understanding of this chapter *(be honest!)*	🔴 No	🟠 Kinda	🟢 Yes	Revised for **Week 10 Exam**	Revised for **Mock Exam**
I can solve first order difference equations. E.g. (i) Solve the difference equation $T_n = \frac{1}{4}T_{n-1} + 3$, given that $T_0 = 28$. (ii) Show that T_n tends to a limit as $n \to \infty$.					
I can solve problems involving interest payments using Difference Equations. E.g. A man borrows €350,000 to buy a house and aggress to repay the same amount A for each month for 20 years. The bank charges a monthly interest rate of 0.25%. (i) Write down a difference equation in D_n, if D_n is the amount of debt owing after n months. (ii) Solve the difference equation and find the value of A.					
I can solve second order homogeneous equations. E.g. Solve $6T_{n+1} = 5T_n - T_{n-1}$, given that $T_0 = 8$ and $T_1 = 3$.					
I can solve second order inhomogeneous equations. E.g. Solve the difference equation $u_{n+2} - 4u_{n+1} + 4u_n = 8n - 3$, given that $u_0 = 5$ and $u_1 = 18$					
I can solve word problems involving difference equations. E.g. The population of bees in a hive was given by $P_0 = 250$ last year. This year it has dropped to $P_1 = 180$. A beekeeper estimates that P_n, the hive's population after n years, follows the difference equation $P_n = \frac{1}{15}\{24P_{n-1} - 5P_{n-2}\}$. Solve this difference equation and estimate the population of bees in 15 years' time.					