



STEP III, 1998, Q3

- 3 The value V_N of a bond after N days is determined by the equation

$$V_{N+1} = (1 + c)V_N - d \quad (c > 0, d > 0),$$

where c and d are given constants. By looking for solutions of the form $V_T = Ak^T + B$ for some constants A, B and k , or otherwise, find V_N in terms of V_0 .

What is the solution for $c = 0$? Show that this is the limit (for fixed N) as $c \rightarrow 0$ of your solution for $c > 0$.



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