

Recurrence Relations - Practice Exercises

Exercises: The following exercises will not be collected. When working through the solutions, be sure to show all of your work and fully justify your answers and reasoning.

1. Find the general solution to $(E - 6)^5 u_n = 0$.
2. Find the general solution to $(E^4 - 8E^2 + 16)u_n = 0$.
3. Find the general solution of the difference equation

$$u_{n+3} - 4u_{n+2} + 5u_{n+1} - 2u_n = 0$$

then find the specific solution which has initial terms

$$u_0 = 3, u_1 = 8, u_2 = 15.$$

4. Find the general solution to $(E^2 - 3E + 2)u_n = n + 3$.
5. Find the general solution to $(E^2 - 3E + 2)u_n = 3 + 2^n$.