Complementary function of difference equation $y_{k+2} - 6y_{k+1} + 8y_k = 0$ for $y_0 = 3, y_1 = 2$

(a) $4^k - 2^k$ (b) $a\,4^k + b2^k$ (c) $2^k - 4^k$ (d) None of these

The paricular integral of $y_{k+2} - 2y_{k+1} + y_k = 1$ is

(a) k (b) k(k-1) (c) 1 (d) $\frac{k(k-1)}{2}$

P.I of $y_{k+2} - 4y_{k+1} + 4y_k = 3.2^k$ is **where a and b are constant**

(a) $a\,k\,2^k$ (b) $a\,k^2 2^k$ (c) $a\,2^k$ (d) $a\,2^k + b$

The value of $\frac{1}{\Delta}(5^k)$ is (a) 5^k (b) 4.5^k (c) $\frac{1}{4}5^k$ (d) $5^k\ log5$

The value of $\frac{1}{\Delta}(2^k k)$ is (a) $2^k k - 3$ (b) $2.2^k(k-2)$ (c) $\frac{1}{2}k2^k$ (d) $2^k\,(k-2)$

The value of $\frac{1}{E}(2^k k)$ is (a) $2^k k - 1$ (b) $2.2^k(k-1)$ (c) $\frac{1}{2}(k-1)2^k$ (d) $2^k\,(k-2)$

The value of $\frac{1}{\Delta}(k)$ is (a) k-1 (b) $2.k^2$ (c) $\frac{1}{2}k^2$ (d) $\frac{(k-1)k}{2}$

The value of $\frac{1}{E}(k)$ is (a) k-1 (b) $2.k^2$ (c) $\frac{1}{2}k^2$ (d) $\frac{(k-1)k}{2}$

The value of $\frac{1}{\Delta}(e^{2k})$ is (a) e^{2k} (b) $\frac{e^{2k}}{e^2-1}$ (c) $\frac{e^{2k}}{e-1}$ (d) $\frac{e^{2k}}{2}$

The value of $\frac{1}{E}(e^{2k})$ is (a) e^{2k} (b) $\frac{e^{2k}}{e^2-1}$ (c) $\frac{e^{2k}}{e^2}$ (d) $\frac{e^{2k}}{2}$

$\Delta = E - 1$

$E(f(K))$

$= f(K+1)$

Q: The Generating function of $a_k = a^k$

1) $\frac{1}{1-ax}$ 2) $\frac{1}{1+ax}$ 3) $\frac{1}{(1-ax)^2}$ d) $\frac{1}{(1+ax)^2}$

Q: The Generating function $\{\frac{1}{2}, \frac{1}{2}, \frac{1}{2} \cdots,\}$

<u>use</u> $\cancel{G(x) = 1 + \frac{1}{2}x + \left(\frac{1}{2}x\right)^2 + \left(\frac{1}{2}x\right)^3 + \cdots,}$

$\cancel{= \left[1 - \frac{1}{2}x\right]^{-1}}$

Q: G.F. of $a_{n+1} - 5a_n = 0$

a) $\frac{1}{1-5x}$ b) $\frac{1}{1+5x}$ c) $\frac{2}{1-5x}$

Q: $a_{n+2} - 10a_{n+1} + 25a_n = 0$

$\boxed{a_n = ?}$

Q: If $a_0 = 1$ then what is the value of a_{50} for $a_{n+1} - 5a_n = 0$

Q: degree of $a_{n-3} + a_{n-2} + 5a_{n+1} - 6a_n = 0$ is

Q: Which one of the following is the homogenous recurrence relation

1) $a_{n+5} + 5a_n = 6^n$

✓2) $a_{n+1} - 6a_n = 0$

3) $a_{n+1} - 6 = 0$

4) $a_{n+1} - a_n - 6a_{n-1} + 10 = 0$