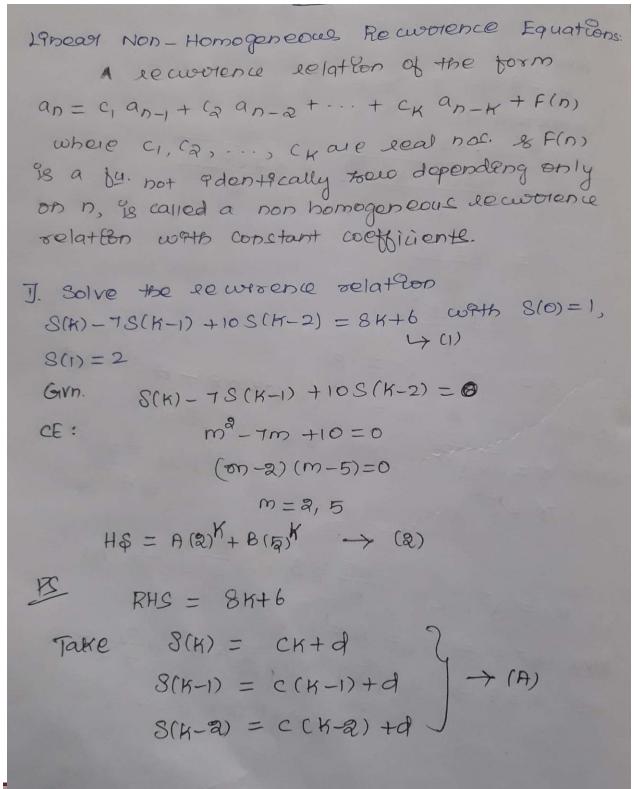




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**UNIT 1- COMBINATORICS** 

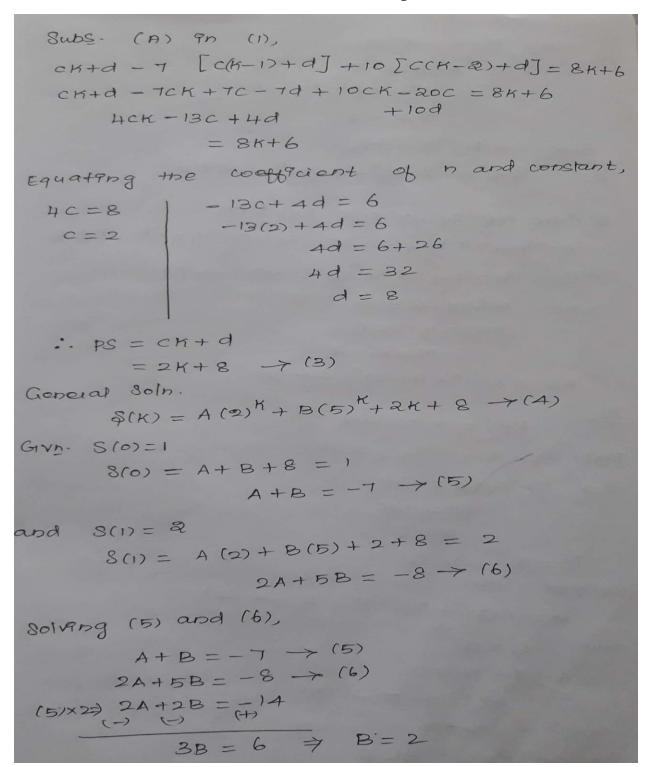






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**UNIT 1- COMBINATORICS** 







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#### **UNIT 1- COMBINATORICS**

8abs. 
$$B = 2$$
 9n (5),  
 $A + B = -7$   
 $A = -9$   
Subs. A& B 9n (4),  
 $S(K) = -9(8)^{K} + 2(5)^{K} + 2K + 8$   
 $\overline{S}$ . Solve the Removemence Relation  
 $a_{1} - a_{1} - 6a_{1} - 2 = -30$ ,  $a_{0} = 0$ ,  $a_{1} = -5$ ,  $n \geq 2$   
Giv.  $a_{1} - a_{1} - 6a_{1} - 2 = -30 \rightarrow (1)$   
 $CE$ :  $m^{2} - m - 6 = 0$   
 $(m-3)(m+3) = 0$   
 $m = 3 - 2$   
 $HS = A(3)^{9} + B(-2)^{9} \rightarrow (2)$   
 $PS$   
 $RHS = a constant$   
 $Take a_{1} = a_{1} - 2 = a_{1} - 2 = a_{1}$   
 $a_{1} = a_{2} - 2 = a_{2}$   
 $a_{2} = 6$   
 $a_{3} - 2a_{4} = a_{4}$   
 $a_{4} = -5$   
 $a_{4} - 2a_{5} + 5 = -5$   
 $a_{4} - 2a_{5} + 5 = -5$ 





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#### **UNIT 1- COMBINATORICS**

$$3A - 2B = -10 \rightarrow (6)$$

$$SolvPng (5) and (6),$$

$$(5) \times 2 \Rightarrow 2A + 2B = -10$$

$$3A - 2B = -10$$

$$5A = -20$$

$$A = -\frac{20}{5} = -4$$

$$(5) \Rightarrow -4 + B = -5$$

$$B = -5 + 4$$

$$B = -1$$

$$(4) \Rightarrow a_{1} = -4(3)^{n} - 1(-2)^{n} + 5$$

$$3I. Solve a_{1} - 3a_{1} - 2 = 4^{n} + 6 \Rightarrow (1)$$

$$CE: m^{2} - 2a_{1} - 3a_{1} - 2 = 4^{n} + 6 \Rightarrow (1)$$

$$CE: m^{2} - 2a_{1} - 3a_{1} - 2 = 4^{n} + 6 \Rightarrow (1)$$

$$CE: m^{3} - 2a_{1} - 3a_{1} - 2 = 4^{n} + 6 \Rightarrow (1)$$

$$RS: RHC = 4^{n} + 6$$

$$PS = PS_{1} + PS_{2}$$

$$PS_{1}: Take a_{1} = d. + 4^{n} - 3d.$$

$$a_{1} - 2d. + 4^{n} - 3d. + 4^{n} - 2d.$$

$$A. + A - 2d. + A - 2d. + A - 2d.$$

$$A - A - 2d. + A - 2d.$$

$$A - A - 2d. + A - 2d.$$

$$A - A - 2d. + A - 2d.$$

$$A - A - 2d. + A - 2d.$$

$$A - A - 2d. + A - 2d.$$

$$A - A - 2d. + A - 2d.$$

$$A - A - 2d. + A - 2d.$$

$$A - A - A - A - A - A$$

$$A - A - A - A - A$$

$$A - A - A$$





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#### **UNIT 1- COMBINATORICS**

$$\frac{16d - 8d - 3d}{16} = \mu^{n}$$

$$\frac{16d - 8d - 3d}{16} = 1$$

$$\frac{5d}{16} = 1$$

$$d = \frac{16}{5}$$

$$PS_{1} = \frac{16}{5} (4)^{n}$$

$$PS_{2}:$$

$$RHS = a constant$$

$$Take  $a_{1} = a_{1-1} = a_{1-2} = d$ 

$$d - 3d = 6$$

$$- 4d = 6$$

$$d = \frac{6}{24}$$

$$d = -\frac{3}{2}$$

$$PS_{2} = -\frac{3}{2}$$

$$PS_{3} = \frac{-3}{2}$$

$$PS_{4} = \frac{3}{2}$$

$$PS_{5} = \frac{16}{5} (4)^{n} - \frac{3}{2}$$
Gienesial soln.
$$a_{1} = A(3)^{n} + B(-1)^{n} + \frac{16}{5} (4)^{n} - \frac{3}{2}$$

$$4J. Solve  $a_{1} - 4a_{1-1} + 4a_{1-2} = a^{n} + 3n, n \ge a$ 

$$Givn.  $a_{1} - 4a_{1-1} + 4a_{1-2} = a^{n} + 3n$ 

$$L_{5}(1)$$

$$CE: n^{2} - 4m + 4 = 0$$

$$(m-2)^{2} = 0$$

$$m = a, a$$

$$HS = (\beta + n B) a^{n}$$$$$$$$





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#### **UNIT 1- COMBINATORICS**

PS:

RHS= 
$$2^{n} + 3n$$
 $PS = PS_{1} + PS_{2}$ 

PS\_{3} =  $2^{n}$ 

Take  $a_{1} = d_{1}n^{2} a^{n}$ 
 $a_{1} = a_{1}n^{2} a^{n}$ 
 $a_{1} = a_{1}n^{2}$ 
 $a_{1} = a_{1}n^{2}$ 





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#### **UNIT 1- COMBINATORICS**

Equating the coeffs of n and constant,
$$d_1 = 3; \quad d_0 - 4d_1 = 0$$

$$d_0 = 4d_1 = 12$$

$$d_0 = 12$$

$$PS_2 = 12 + 3n \qquad PS = \frac{1}{2}(n)^2(2)^n + 12 + 3n$$
General soln.
$$a_1 = (A + nB)(2)^n + \frac{1}{2}(n)^2(2)^n + 12 + 3n$$

$$Hw \quad J. \quad Solve \quad S(R) - 5S(R-1) + 6S(R-2) = 2 w9+5$$

$$S(0) = 1, \quad S(1) = -1.$$