Discrete Maths



Cx

$$O(1+(2)) = a_0 + a_1 + a_2 + - -$$

$$= 0.x^{6} + 1.x^{4} + 3x^{2} + 7x^{3} + 15x^{4} + 31x^{5} + ...$$

$$= (2^{0}-1)^{2} + (2^{1}-1)^{2} + (2^{2}-1)^{2} + (2^{3}-1)^{2} + (2^{3}-1)^{2} + (2^{5}-1)^$$

 $\frac{Ex}{a_{nH}} = \frac{RHS}{2a_n + 1}$

Lots work it out

(1) Lots multiply by 20 and sum over for validn.

2 RHS multiply by 2 and sum over for valid n

3 Compare Aus. from 1 4 2 Comme to regult. LHS

ant

$$= a_{1} x^{9} + a_{2} x + a_{3} x^{2} + a_{4} x^{3} + a_{5} x^{4} + a_$$

2+45 29nH multiply by 2 and sum over $\sum_{n \geq 0}^{\infty} (2a_n + 1) x$ $= 2 \frac{\sqrt{(x)}}{\sqrt{1-x}}$

$$\frac{1}{x}A(x) = 2A(x) + \frac{1}{1-x}$$

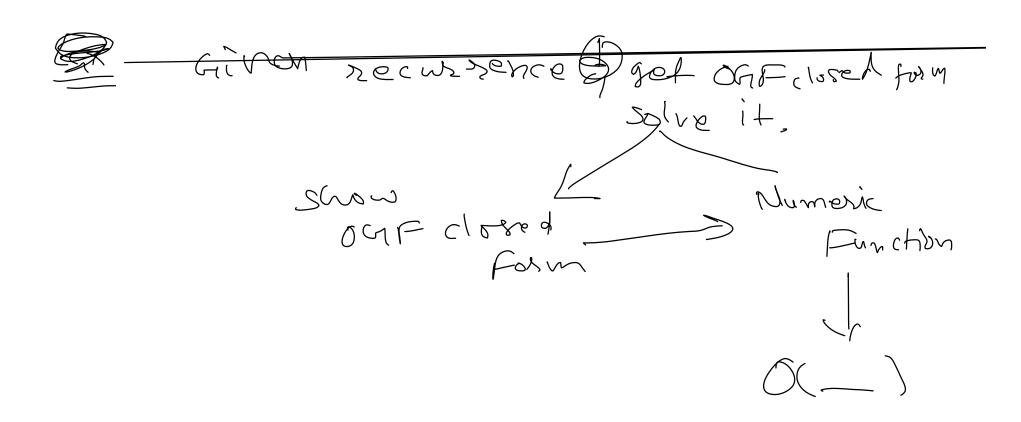
$$\frac{1}{x}A(x) = 2A(x) + \frac{1}{1-x}$$

$$A(x) - 2x A(x) = \frac{1}{1-x}$$

$$A(x) = \frac{1}{1-x}$$

$$A(x) = \frac{2}{1-x}$$

Frymoric function way ant = 29 nt . 2-1 2 _ 1 22-1 4-1 $2^{3}-1$ g - 129-1 32 — 25_



7,0,0=1 giron. $\leq a_{n+1}x^n$ $\Rightarrow q_1 + q_2 + q_3 + \dots -$ (Aex) -ao) = (Acr1-1)

RHS
$$2an + h$$

 $= (2a_n + h) x^n$
 $= (2a_0 + o) x^0 + (2a_1 + 1)^{2}$
 $+ (2a_2 + 2) x^2 + \cdots$
 $= 2a_0 x^0 + 2a_1 x^{\frac{1}{2}} + 2a_2 x + 2a_3 x^{\frac{1}{2}} + \cdots$
 $+ (0.x^0 + 1.x^1 + 2.x^1 + \cdots)$
 $= 2(a_0 x^0 + a_1 x^1 + a_2 x^2 + \cdots)$
 $+ (\sum_{n \ge 0} x^{n})$

$$= 2 \text{ Acm} + \sum_{n \neq 0} n \times n$$

$$= 2 \text{ Acm} + \frac{2}{(1-x)^2}$$

$$=$$

. of mumber S(n, 2)Stirling second