$$n = 7$$

$$min = 2 \quad comin = 3$$

$$j = 2 \quad a_2 = 3$$

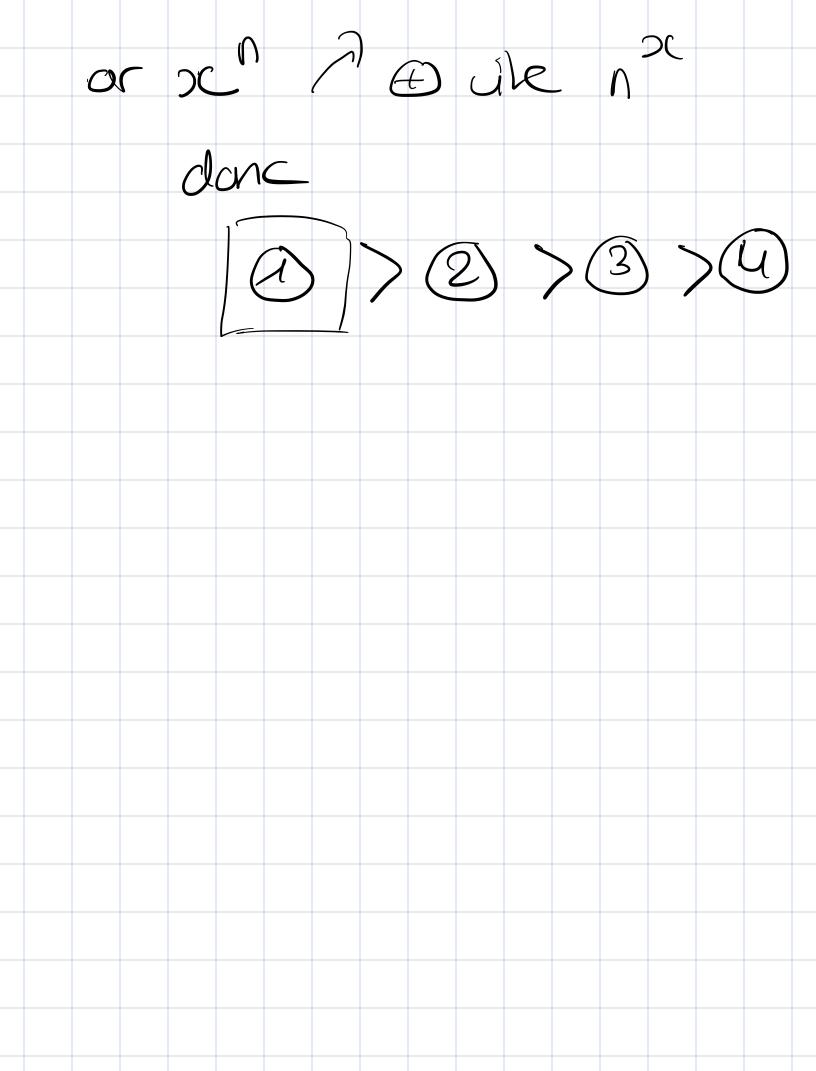
$$\hat{j} = 3$$
 $a_3 = 8$

Exercise 1 nême no de compercisons. $0 + (0-1) + \dots$ 9 38 65 17 1 38 65 97

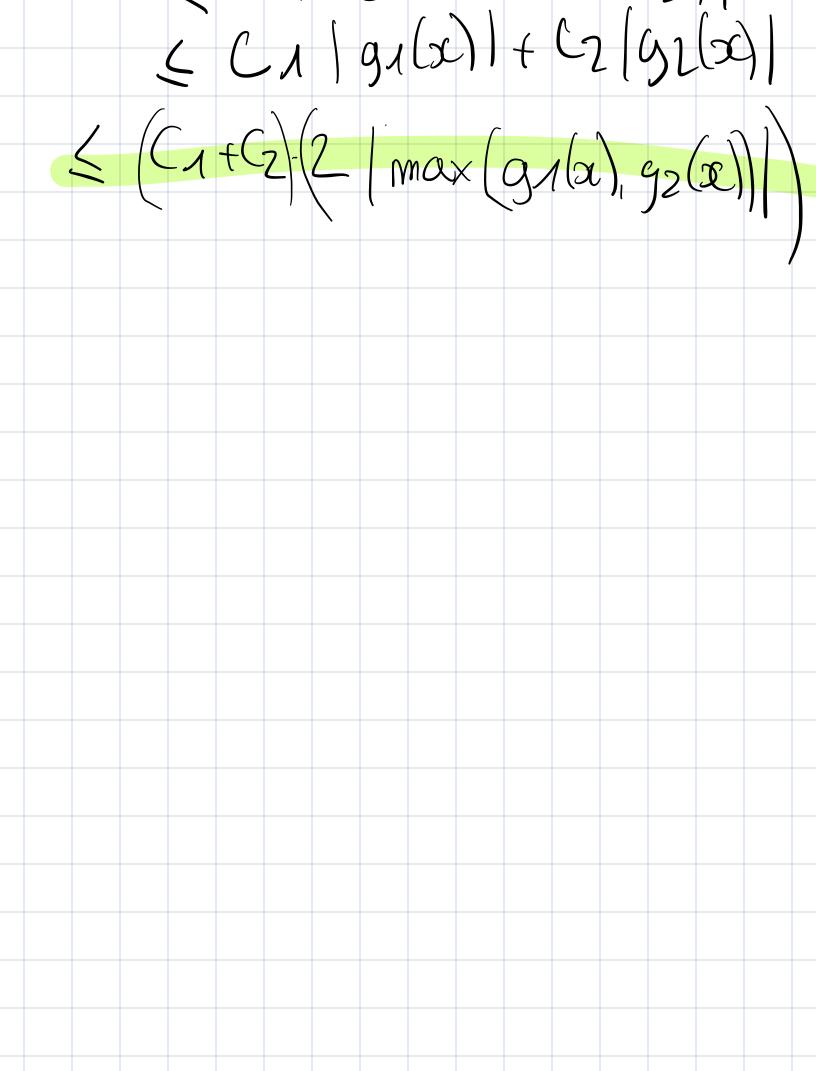
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, < >1 3 n come < > 3³ > 27on a 1 > 2 la puissence T & le multiple.

32 7 30c,



Ex3 if $\{x(x) \in \mathcal{O}(g_{\lambda}(x))$ | fi(x) | < Cil gi(x) | $\{g_{z}(x)\}$ $\{g_{z}(x)\}$ 13, (sc) + P2(sc) [< C, 19, (sc)] $+C_2\left(g_2(x)\right)$ es | 31(a) + 32(a) | < $|S_1(x)|+|S_2(x)|$ $\leq C_1 |g_1(x) + g(x_2)|$



$$E \times S$$
 $S(8) = 0$
 $S(n) = S(n-1) = 1$
 $S(n) = S(n) = S(n) = 1$

$$0, -1, -2, -3$$

$$g(n) = -n.$$

$$\begin{cases}
(k) = -k \\
8(k+1) = -k-1
\end{cases}$$

$$= f(k) - 1 Ok.$$

$$= f(k) - 1 Ok.$$

$$\begin{cases}
(0) = 0 \\
6(1) = 1 \\
8(0) = 0
\end{cases}$$

$$\begin{cases}
(0) = 0 \\
7 O(0) = 0
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$$\begin{cases}
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7 O(0)$$

$$S(0) = \frac{2^{1/2}(1-1)}{2}$$

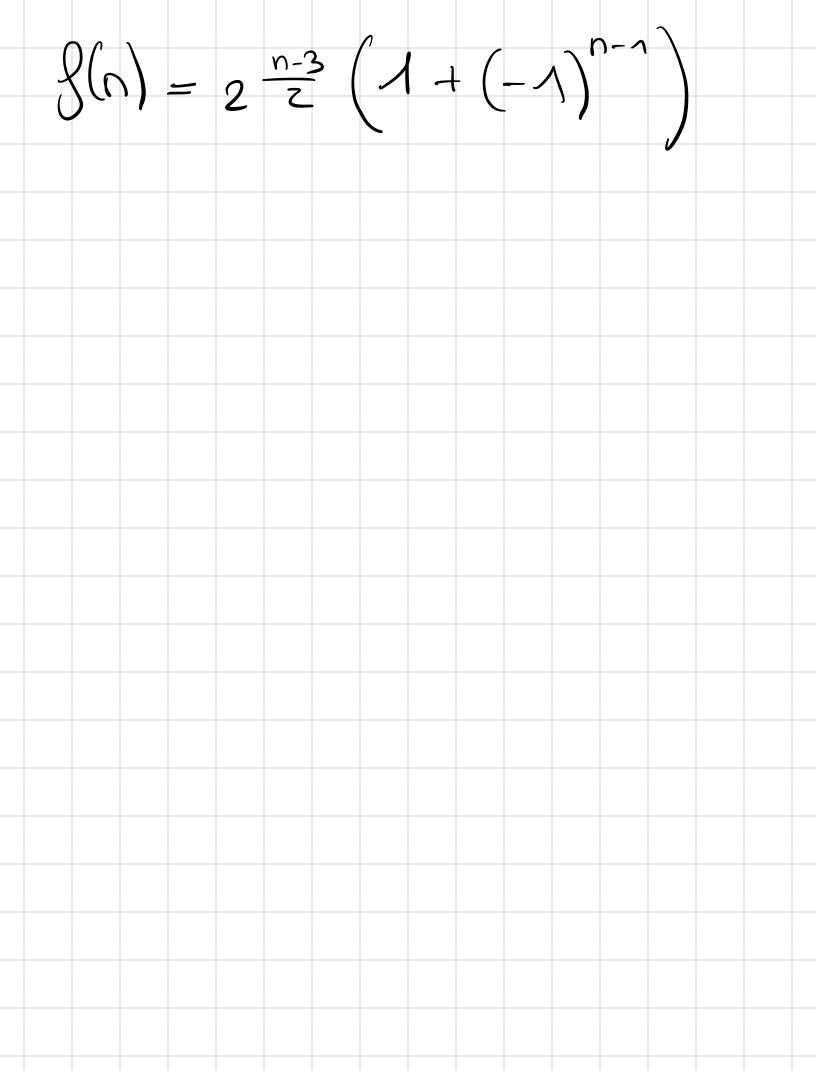
Induche Step

We aroune P(k) is true.

•
$$S(n+1) = 2S(n-1)$$
.

We come $S(n) = 2^{n-1}(1-(1)^n)$

$$=2^{\frac{n-2}{2}}\left(1+\left(-1\right)^{n}\right)$$



$$\frac{E \times 6}{3} |g_{1}(x)| \leq C_{1} |f(x)|$$

$$|g_{2}(x)| \leq C_{2} |f(x)|$$

$$|g_{1}(x)| \geq C_{3} |f(x)|$$

$$|g_{1}(x)| \geq C_{3} |f(x)|$$

$$|g_{2}(x)| \geq C_{4} |f(x)|$$

$$|g_{2}(x)| \geq C_{4} |f(x)|$$

$$|g_{1}(x)| + |g_{2}(x)|$$

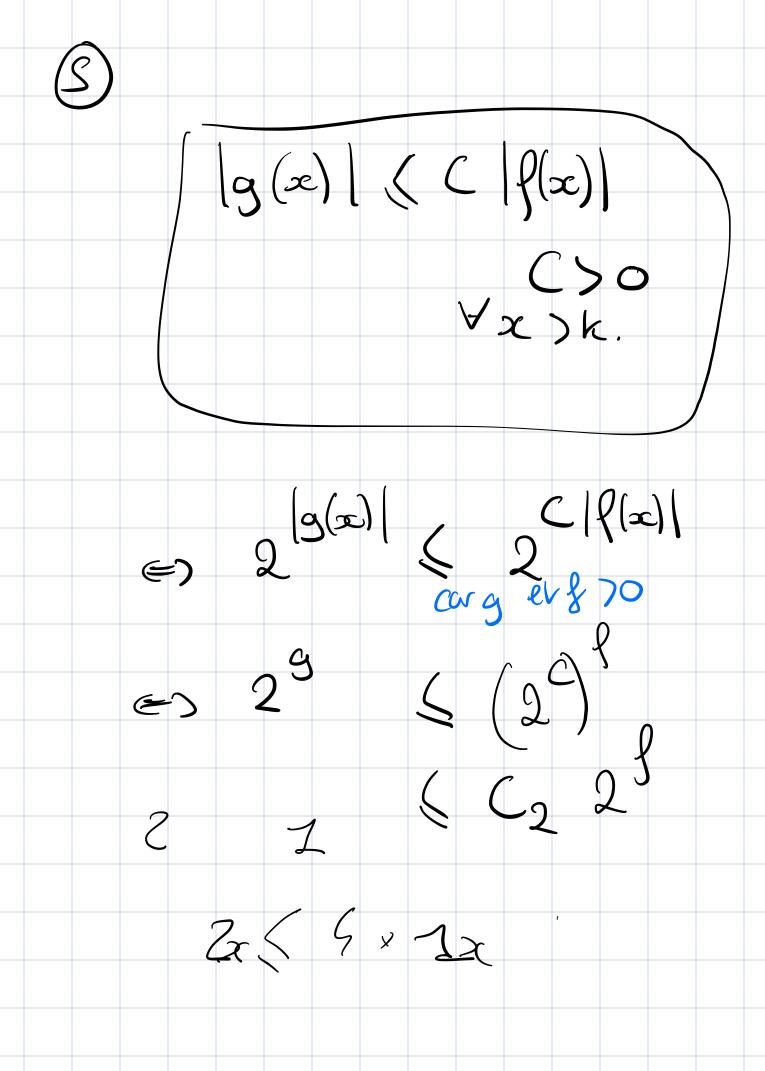
$$|g_{2}(x)| + |g_{2$$

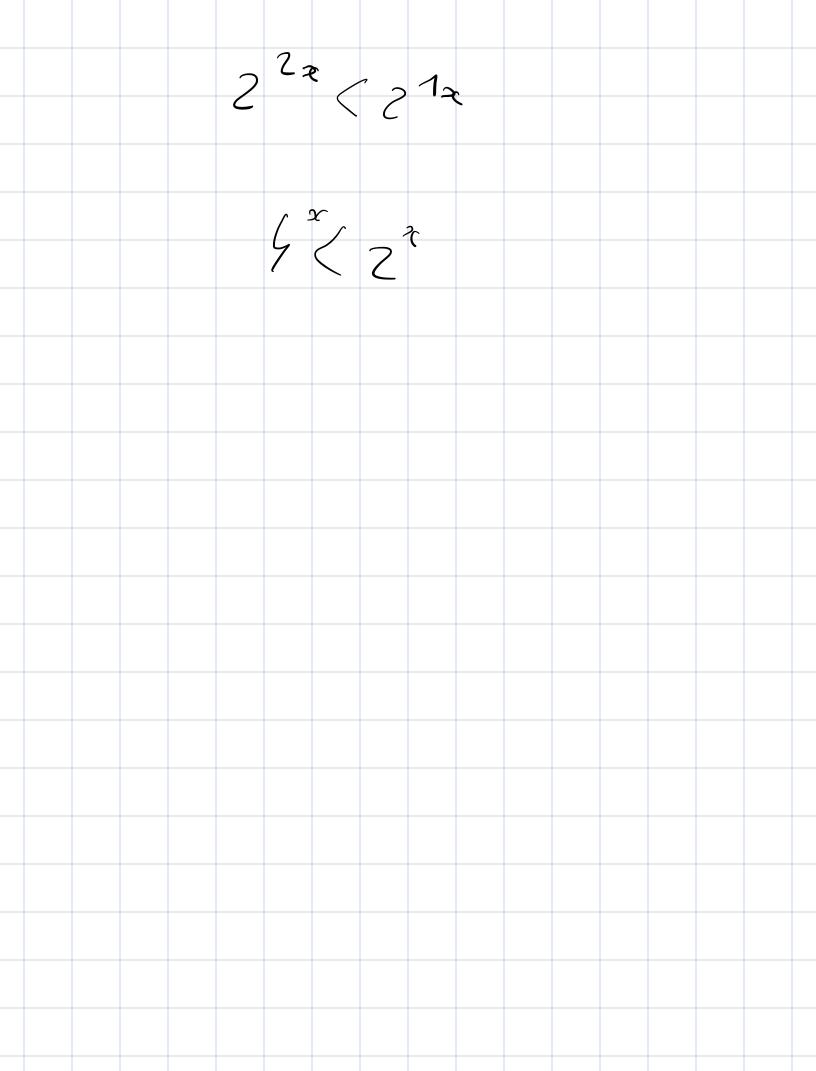
[| g, (sc) | + | g2 (sc) | > (C3+C4) (R(2)) $|g_{\lambda}(x)| + |g_{z}(x)|$ $) (g_1(x) + g_2(x))$ > (C3 + C4) (P(x)) 91(2) = -52 97 (x) = Sx 91 15 0 (21)
91 15 0 (21) (91492) is O(1) $\neq \theta(x)$ become it is

(x)

2 + 4 g1 is O(8) $|g(x)| \leq C_1 |f(x)|^2$ $|g_2(x)| \leq |f(x)|$ f is Ω (a) $|g_1(x)| > C_3 | f(x)|$ $|g_2(x)| > C_4(f(x))$ 9192 | C.C. 2 | 92 | coson en la chear (3192)), C.3 Cy | 92 | absolve 1 g1 is O(8) $|g(x)| \leq C_1 |\{(x)\}|$ $|g_2(\infty)| \leq C_2 |f(\alpha)|$ f is $\Omega(a)$ $|g_1(x)| > C_3 |f(x)|$ $|g_2(x)| > C_4 |f(x)|$ $|g_1(x) + g_2(x)|$ $\left(\left| 9_1(x) \right| + \left| 9_2(x) \right|$ $\left(\left(C_{1} + C_{2} \right) | \left(\left(\infty \right) \right) \right)$ = (9.1+gz)(x)is O({)

|91(x) + |92(x) > (C3+C4) (P(2)) $g_{1}(x)+|g_{2}(x)|$ $\left(=\left(g_{1}(x)+q_{2}(x)\right)\right)$ > (C3 + C4) (R(x)) superer agg dons ceurs? Epèrer es Cer grebaz





Excuse 7 = 7 f = R $log_m(n) = log_2(n) = a \chi$ $log_2(m)$ $log_{m}(\ell) = \frac{log_{2}(\ell)}{log_{2}(m)} = b \times$ neu ordre, NRAI

$$\log_{\alpha}(b) = \frac{\log_{\alpha}(b)}{\log_{\alpha}(a)}$$

$$log_a(b) = x$$

$$b = a^{\infty}$$

$$\Rightarrow \log_c(b) = \log_c(a^x)$$

$$= \log(b)$$

$$\log(a)$$

$$\log_{k}(m) = \frac{\log_{k}(m)}{\log_{k}(k)}$$

$$k = \frac{\log_{k}(m)}{\log_{k}(e)}$$

$$\log_{k}(m) = \frac{\log_{k}(m)}{\log_{k}(e)}$$

$$\log_{k}(m) = \frac{\log_{k}(m)}{\log_{k}(m)} \log_{k}(k)$$

$$\log_{k}(m) = m$$

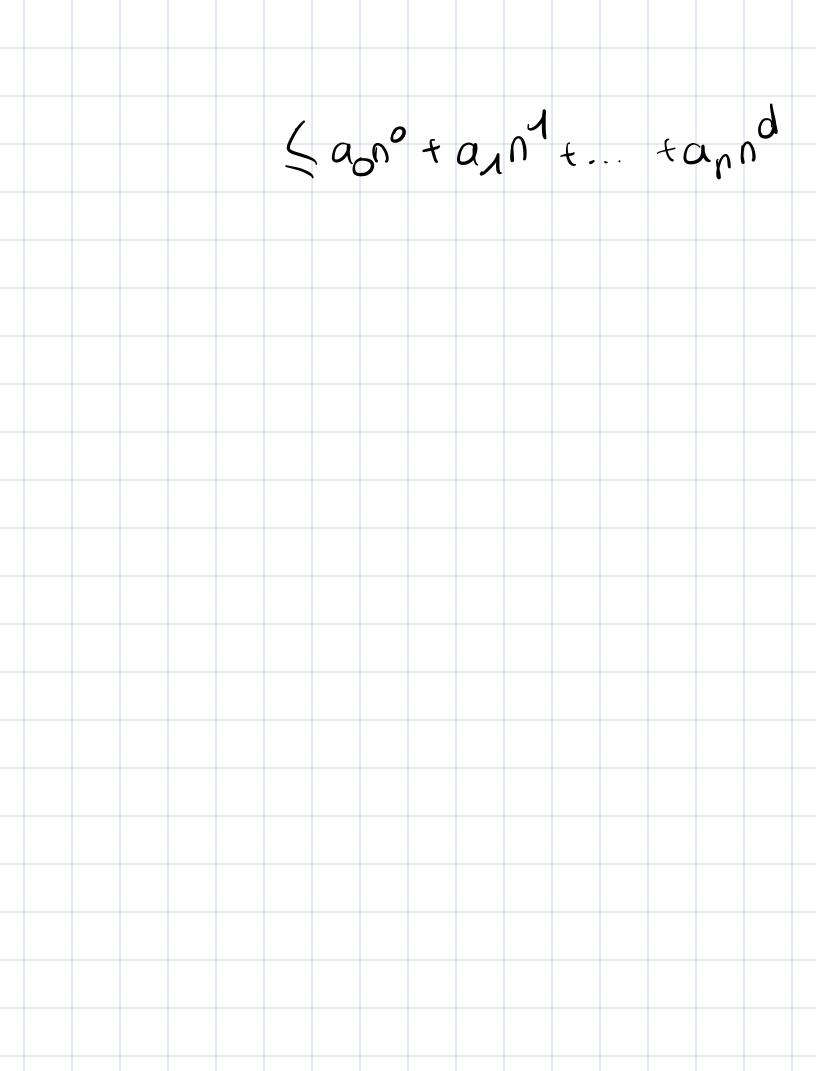
$$\lim_{k \to \infty} \log_{k}(m) = m$$

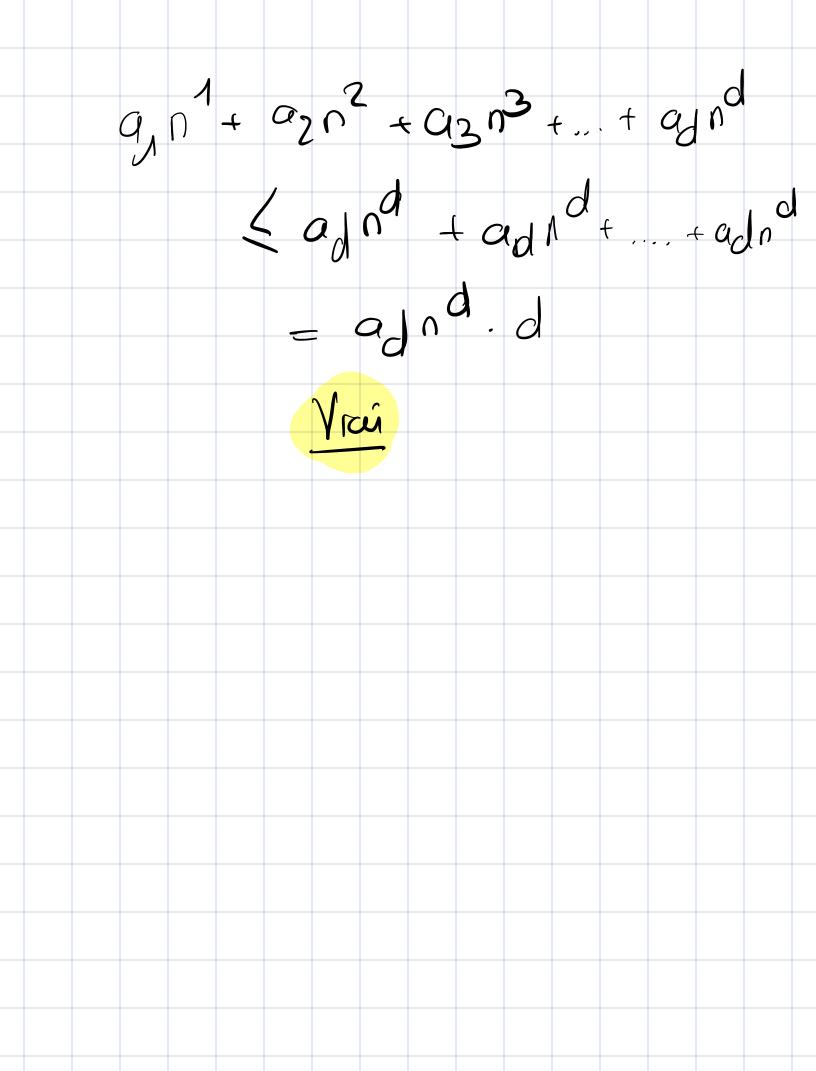
Exercise 8

$$g(x) = 0$$
 $g(x) = 0$
 $g(x) = 0$

Exercise 9 S 1+2-3+4 + ... +n O(02) $n(n+1) \in n+n+..+n$ $= a_0 n^0 + a_1 n^1 + \dots + a_n n^d$ ≤ Dnd + Dnd + ... + Dnd = D. nd \(\int \D. n\d \takent 1-nd+1

 $a_0 n^0 + o_1 n^0 + \dots + a_n n^0$ Cond+ Dnd + ... + Dnd $= D \cdot n^{d} \cdot n = D n^{d+1}$ 0(041) $a_0 n^0 + a_1 n^d + \dots + a_n n^d$) no + n + n d $= \begin{cases} \frac{1}{k} & \frac{1}{k} &$ > nd-1





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										$- _{\ell}$		1	

Exercise 11

AB = BA.

P(h): ABK_BKA

Baros Step

AB^ _ B1A

OK]

Inductive step

P(ke1): BBK+1=BK+1A

= ABKB = BKBA.

BKAB = BKBA.

= BKBA = BKBA. OK

