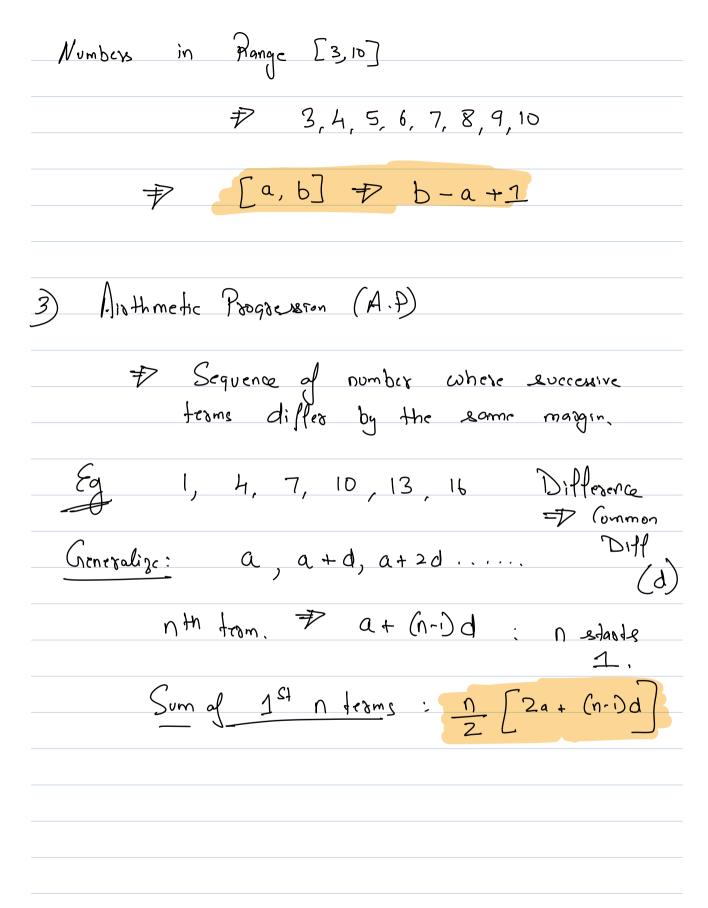
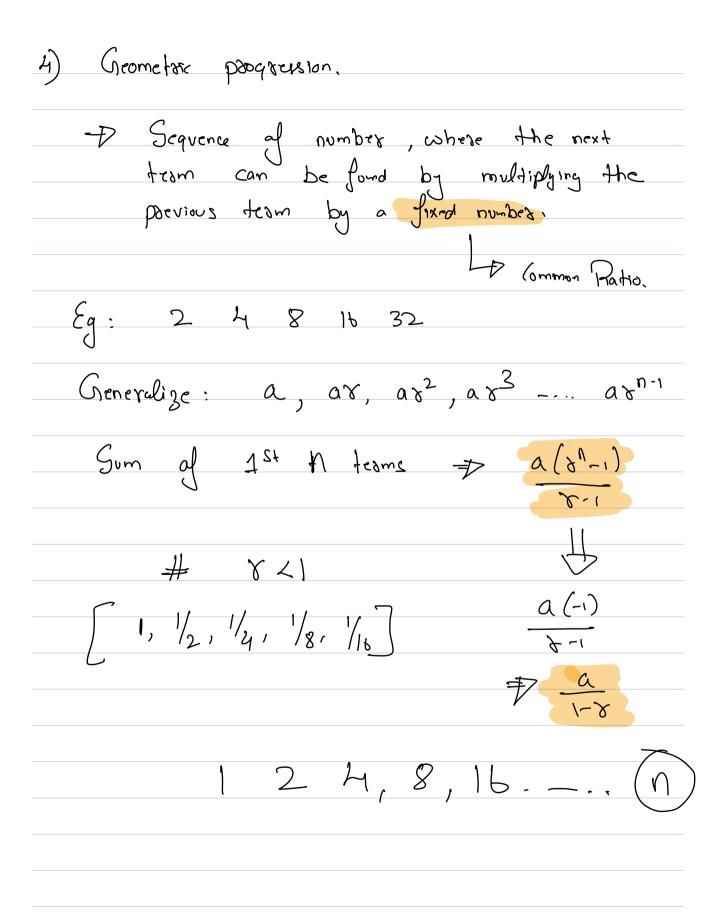
i) logn log n => R log 81 = 4 bk => n 34=81 Cq log 2 32 ≠> 5 S 2 ₱32 log 4 \$ 2 log 2 2 10 \$ 10 log 2n => number of times we need to divide n by 2 so that it Teaches 1. 32 number of time we need to multiply 1 by 2 so that it beaches n.





$$\int_{0}^{\infty} \int_{0}^{\infty} (i=0; i \le n; i+=2) dx$$

$$i=0,2,4,68,10$$

$$\begin{bmatrix} 0, n \end{bmatrix}$$

$$\frac{1}{2} \frac{1}{2} \times n$$

$$= O(n)$$

$$\int_{00}^{4} \int_{00}^{1} (i-1, i*i \leq N; i+1) dx$$

$$= \int_{00}^{1} \int_{0$$

$$\frac{05}{\text{while } (i > 1) l}$$

$$\frac{i = i/2}{3}$$

$$i = N$$
, N_2 , N_4 , N_8 , N_{1b} ----- $\frac{1}{2}$

$$\begin{cases}
6 & \begin{cases}
6 & (i=0); i \leq N; i=i*2
\end{cases}
\end{cases}$$

$$\int_{0}^{7} \int_{0}^{8} \left(i-1 ; i \leq N ; i=i \times 2\right) \mathcal{L}$$

Needed loops

$$\int_{0}^{\infty} \int_{0}^{\infty} \left(i = 1 ; i \leq 10 ; i + 1 \right) d$$

J

2

	i	į	No of iteration
	1	[1,N]	/
	2	[1,N]	\wedge
	3	[1, N]	\sim
	1		
	,		
_	D	[1,1]	\sim

10N



ζ

i	Ĺ	No of iteration
1	[1,N]	\wedge
2	[1,N]	\wedge
3	[1, N]	\sim
1		
,		
N	[1, N]	\mathcal{N}

N2

 $\neq O(N^2)$

$$\int_{0}^{\infty} \int_{0}^{\infty} \left(\inf_{i=1}^{\infty} \frac{1}{j} + \inf_{i=1}^{\infty} \frac{1}{j}$$

2

	i	i	No of iteration
	1	logn	logn
	2	logn	logn
_	3	logn	logn
	(
Λ	/	lugn	logn

Nlog N

O(NlogN)

$$\int_{0}^{3} \int_{0}^{3} \left(i = 1; i \leq N; i + 1\right) dx$$

$$\int_{0}^{3} \left(j = 1; j \leq (\frac{1}{2}); j + 1\right) dx$$

i	į	No of iteration
1	[1,2!)	2'
2	$\left[2^{2} \right]$	22
.3	$[1, 2^3]$	23
1		
į		
N	[1,2"]	2 ^N

How to calculate Big O from the number of iterations. J Ignore lower order teams.
2) Ignore (onstants No of iterations 7 4n2 + 3n + 2 1st Step: Ignose lower order teams \$ 4n2 2 Step: Ignore Constants. $4n^2 = Cn^2$ P n $\binom{n^2}{n^2}$



$$2^{32}$$
 $432 = 2^{34}2^{5} = 2^{37}$

N	NV	NlugN
232	248	2 ³⁷
264	96 2	2 ⁷⁰

$$N = 2^{32}$$
 $N\sqrt{N}$ $\neq 2^{32} \times \sqrt{2^{32}}$

$$2^{32+16} = 2$$

Stept: Ignor lower order deams

 $=3M\sqrt{N}$

: Ignore Constants

- \bigcirc (MM)