Misha Khnelkov

	MISTA Khaelkov
1	
A A A A	I teration 1c 1 2 3 14. K i after Aration 4 16 256 65536 2216 Stop at
in the	i after Ferston 4 16 256 65536 22" stop at
N. W.	
— # > * □ *	$2^{2^{k}} = h \qquad \log \left(2^{2^{k}}\right) = \log n$ $2^{k} = \log n \qquad \log \left(2^{k}\right) = \log \left(\log n\right)$
	$2^{k} = l_{eq} n \qquad l_{eq} (2^{k}) = l_{eq} (l_{2d} n)$
2	15 = 100 / 100
Z*	Inside of -hile is $\theta(1)$
FIVE STAF	$T(n) = \sum_{i=1}^{\log(\log n)} \left(\Theta(i)\right) = \Theta\left(\log\log n\right)$
—Ψ¥——	(C1) = 21 (Q(1)) = Q (10g 10g n)
-C*	
	1:3-1
b.	$T(n) = \sum_{i=1}^{n} \left(\Theta(i) + O\left(\sum_{i \in \mathcal{I}} \Theta(i) \right) \right)$
	13-1
	$+(n)=\underbrace{2011}_{121}+\underbrace{2201}_{1220}$
	i 1 2 3
	i lint) vn 2 cint) vn 3 cint) vn Stop when i=n
_ <u> </u>	i ((int) vn 2(int) vn 3(int) vn Stop when i=n
1=0	が j が = ハ j = が ?
	VA (3VA)-1
TVE ST ***	$T(n) = \theta(n) + \sum_{j=1}^{\infty} \sum_{k=0}^{(j\sqrt{n})^{3}-1}$
- E *	$T(n) = \theta(n) + \frac{1}{2} \theta((j\sqrt{n})^3) = \theta(n) + n^{3/2} \cdot \frac{1}{2} \theta(j^3)$
	j=1 40 1 J=1 J=1
	$T(n) = \theta(n) + \theta(n^{3/2} \cdot \sqrt{n^{3+1}}) = \theta(n) + \theta(n^2) = \theta(n^{7/2})$
	$ (v) = \rho(v) + \rho(v) \cdot vv = \rho(v) + \rho(v) - \rho(v)$

C. Iteration X | 1 | 2 | 3 /41 m after iteration | 2 | 4 | 8 / 16 | Stop at 1 m=2 x n=2 x log n = x $T(n) = \underbrace{\xi}_{i=1} \underbrace{\xi}_{k=1} \left(\frac{\partial (1)}{\partial (1)} + O\left(\frac{\xi}{2} \right) \frac{\partial (1)}{\partial (1)} \right)$ Worst case, the if statement is triggered a times (if each ALI

T(n) = O(n2) + 2 2 0(1)

V=1 X=1 $T(n) = \Theta(n^2) + \frac{2}{2} \Theta(\log n) = \Theta(n^2) + \Theta(n \log n) = \Theta(n^2)$ d. $T(n) = \theta(1) + \frac{2}{100} \left(\theta(1) + O(\theta(1)) + \frac{2}{100} \theta(1) \right)$ Sizos: (0, 15, 22.5 222, 33, 49.5 249, ... $|0.(\frac{3}{2})^{x-1}| = n \qquad (\frac{3}{2})^{x-1} = \frac{n}{10} \qquad (x+1)|_{0} = \frac{3}{2} = |_{0} = \frac{n}{10}$ $x = |_{0} = (\frac{n}{10}) + 1 \qquad size = |_{0} = (\frac{3}{2})^{x-1}$ $= |_{0} = (\frac{3}{12})^{x-1} + \frac{1}{10} = (\frac{3}{12})^{x-1}$ $= |_{0} = (\frac{3}{12})^{x-1} + \frac{1}{10} = (\frac{3}{12})^{x-1}$ T(n) = \text{O(n)} + \text{O \lefth{\line(\frac{\gamma\{0\}}{\line(\gamma\)}\frac{\gamma\{0\}}{\line(\gamma\)}\frac{\line(\gamma\)}{\line(\gamma\)}\frac{\line\ $T(n) = \theta(n) + \theta(\log n) + \theta(\frac{3}{2})^{\log n}$ $T(n) = \Theta(n) + \Theta(\log n) + \Theta\left(\frac{3\log n}{2\log n}\right)$ $T(n) = \theta(n) + \theta(\log n) + \theta\left(\frac{3\log n}{n}\right) = \theta(n)$