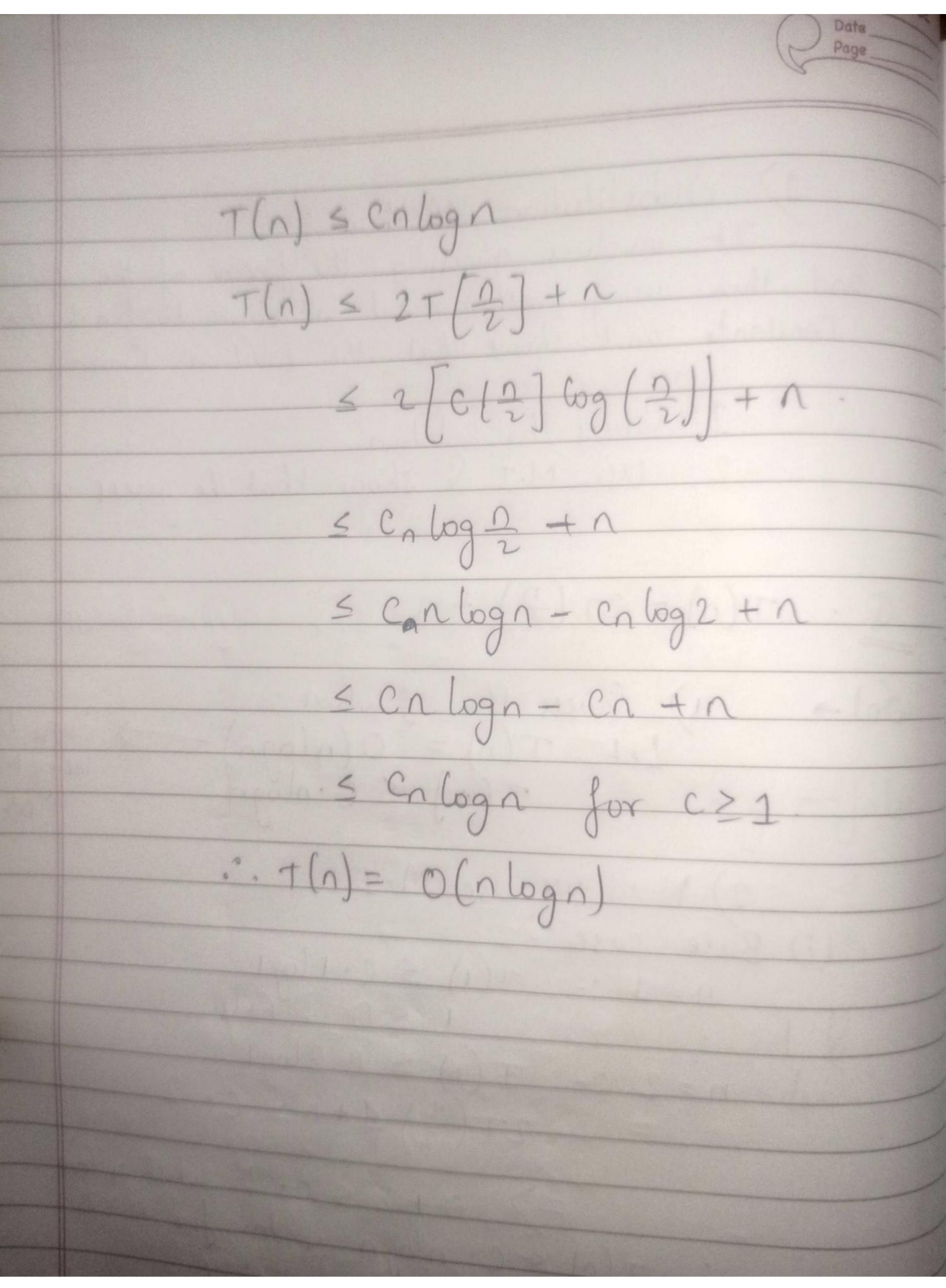
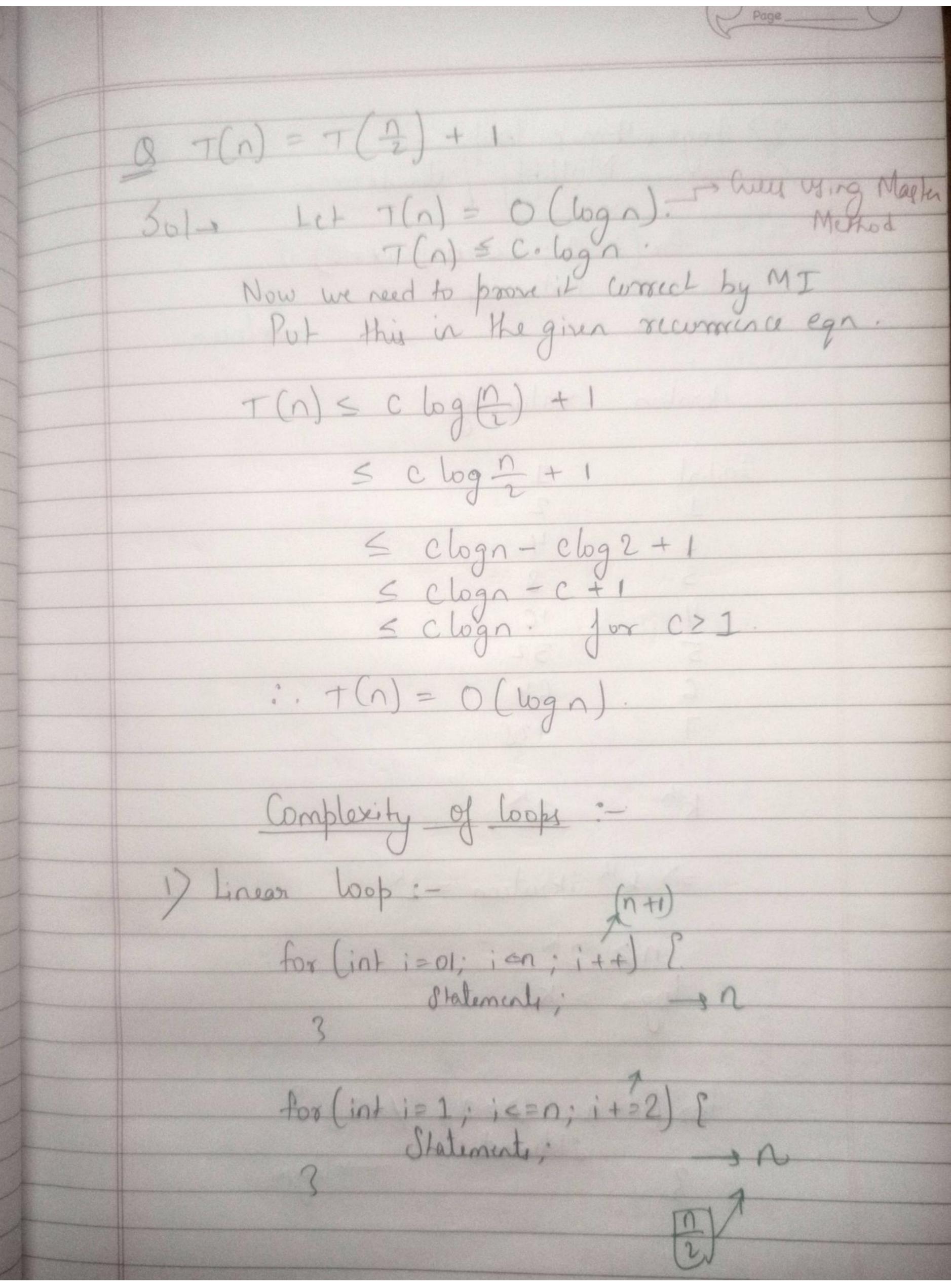
1) Substitution Method: and then using mathematical induction to find the contents and shows that the solution work. 1. Guey the solution 2. Use M.I & show that the guers is correct Q. T(n) = 2T(2) + n) Chues the Solution. Let $T(n) = O(n \log n)$. $T(n) \leq C \cdot n \log n$ > Cruys this Using Mastale Method 2) Now we use M.I (i) Boue case: $n=1:-T(1) \leq C\cdot 1\log 1$ $1\leq 0 \quad \text{False}$ n=2:- T(2) 5 C. 2log2 2T(2) \$+2 5 C. 2. => 0+250.2 Which is hove in I(n) s conloga is home for n=2. (ii) Inductive Step: - Now we assume it is tour fox i.e. T(2) & c. 2 log 2 is brue. Now, we have show it is kneeder n=n.





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2) Logarithmic book:- Multiply / divide.
for (i=1; i <=n; i*=2). ? Statemente; 3 bgn
iteration value of i
Initial 1 1 2
2 4 3 8
Y 16 5 32
6 64 7 128
K th 2 ^k
=> kk iteration = 2k.
$n \ge 2^{K}$ $\log_n \ge K$
20gn > K
for (i=n; id=3; i/=2) ? 3 totemente;
John John John John John John John John

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3) Nested loop: -(a) linear logavillemicifox (i=1; ic=n; i++) ?->n Ar (j=1; j <=n; j+=2) 8-369n 7(n)2nloga (b) Quadratic: for (i=1; ic=n; i++) 2 -3 1 for (j=1; j <=n; j++) [-1 T(n)= n*n=n (c) Dependent Quadratic: for (i=1; i<=n; i++) { ->n for (j=); j <= i; j++) {
3 a(n+1) iteration: No. of Steps. Initial 01 T(n) = n * a(n+1) 1,2,3 = 3 1,2,3,4 = 4 1,7,3,4-- K=K.

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