```
PUBLIC STATIC STring ConcatNro (int [] argo, int n){
    STring result = " ";
    int i = n;                    C30
    while (i > n/2) {
        FOr (int j = n; cod j >= 1; j-= 4 ){ C1
            FOr (int K=1; K<n, K*=2) {
                result += =, " + argo [K];
            }
        }
        i/ = 2;  C33
    }
    return result;  C32
}
```

$T_1(n)$

$T_2(n)$

$T_3(n)$

C_{31}

L, se ejecuta en una computadora que proceso 100.00
operaciones por segundos. calcular T(n) consideran
orden de ejecución, tamaño $n = 300.000$

$n = 300.000$, $PC = 100.000$ OP/D

18.19

$O(n) = n \cdot \log(n) \Rightarrow O(300.000) = 300.000 \times \log(30$

$300.000 \times 18.19 = 5.455.000$ op

$$\frac{5.3457000 \text{ op}}{100.000 \text{ p/D}} = 54.57 \text{ seg}$$

PARA $T_3(n)$:

$$T_3(n) = C_0 + \sum_{k=1}^{\log(n)+1} C_1$$

$$T_3(n) = C_0 + (\log_2(n)+1) \cdot C_1 \Rightarrow O(n) = \log_2(n)$$

PARA $T_2(n)$

$$T_2(n) = C_{10} + \sum_{j=1}^{n/4} (C_{20} + T_3(n))$$

$$= C_{10} + \frac{n}{4} \cdot (C_{20} + C_0 + \log(n)+1) \cdot C_1) \to O(n) = n$$

$$T_2(n) = C_{10} + \frac{n}{4} \cdot (C_{C_{21}} + (\log_2(n)+1) \cdot C_1); \quad C_{21} = C_{20} + C_0;$$

$$\hookrightarrow O(n) = O(n) \cdot O(\log_2(n)) \to O(n) = O(n \cdot \log_2(n))$$

PARA $T_1(n)$

ITERACIÓN k	ITERACIÓN i=n
1	n
2	n/2 $\left.\vphantom{\begin{array}{c}n\\n/2\\n/4\\n/8\end{array}}\right\}$ $t = n/2^{k-1}$
3	n/4
4	n/8

$i >= n/2$ $\log(2) \geqslant k-1$

$\dfrac{n}{2^{k-1}} > \dfrac{n}{2}$ $1 + 1 > k$

$n \geqslant \dfrac{n}{2} \cdot 2^{k-1}$ $2 \geqslant k$ $=>$ POT lo TANTO ITERA

                                      2 veces

$2n \geqslant n 2^{k-1}$

$\dfrac{2n}{n} \geqslant 2^{k-1}$

$$T_1(n) = C_{40} + \sum_{i=1}^{k=2} (T_2(n) + C_{33}) \quad => \quad C_{40} = C_{30} + C_{31} + C_{3x}$$

$$T_1(n) = C_{40} + 2\left(\left(C_{70} + \frac{n}{4} \cdot (C_{21} + (\log_2(n) + 1) \cdot C_1)\right) + C_{33}\right)$$

$$T_1(n) = C_{40} + 2\left(C_{43} + \frac{n}{4} (C_{21} + \log_e(n) + 1) \cdot C_7\right) ; \; C_{43} = C_1 + C_3$$

$$T_1(n) = C_{40} + 2C_{43} + 2 \cdot \frac{n}{4} (C_{21} + (\log_2(n) + 1) \cdot C_1)$$

$$T_1(n) = C_{50} + \frac{n}{2} \cdot (C_{21} + (\log_c(n) + 1) \cdot C_1) ; \; C_{50} = C_{40} + 2 C_{43})$$

$$O(n) = O(1) \cdot O(n) \cdot O(\log_2(n))$$
$$O(n) = O(n \cdot \log(n))$$