Conteo de Instrucciones

① Para n=10

I = 1 → (1)	
While (I ≤ N) (N+1)	1 + n + 1 + n
I = I + 1 (n)	2n + 2

② Si (n = 10) ✓
⇒ a[11] = x ✓

I = 0	(1)
a[n+1] = x	(1)
While (a[i] != x) (n+2)	
I = I + 1 (n+1)	
3 + 2(n)	
3 + 20	

i	val
0	✓
1	✓
2	✓
3	✓
4	✓
5	✓
6	✓
7	✓

1 + n + 1 + n + n² + n + n² + n

2 + 4n + 2n² ✓

③

		i	J	
I = 1	(1)	1	1 2 3 4 5 no	6
While (i ≤ n)	(n+1)	2	i 2 3 4 5 no	6
J = 1	(n)	3		6
While (J ≤ n)	(n)(n+1)	n		6
J = J + 1	(n)(n)			(n+1)
I = i + 1	(n)			

(4) $i = 2$; (1)

While ($i \leq n$) (n)

$J = 3$ (n-1)

While ($J \leq n$) (n-1) (n-1)

$J = J + 3$ (n-2) (n-1)

$i = i + 1$ · (n-1)

$n + n - 1 + (n-1)^2 + n^2 - 2n + 2 + n - 1$

$n^2 + 2n + 1 + n^2 + n$

$2n^2 - n + 2$

$n + n - 1 + n^2 - 2n + 1$

$+ n^2 - n - 2n + 2 + n - 1$

$2n + n^2 - 2n + n^2 - 3n + 2 + n$

$\boxed{2n^2 - 3n + 2}$

(5) $i = 3$ (1)

While ($i \leq n$) (n-1)

$J = i$ (n-2)

While ($J \leq 2n$)

$J = J + 1$

$i = i + 1$ (n-2)

i	J	
3	3 4 5 6 7 8 9 10 n	2n-2
4	4 5 6 7 8 9 10 n	2n-3
5	5 6 7 8 9 10 n	2n+2
n		n

$\frac{(2n-1) - ((n+2)+1) * (n+2+2n-1)}{2}$

$\frac{(n+2)(3n+1)}{2}$

$\boxed{\frac{3n^2 + n + 6n + 2}{2}}$

Form $\sum_{i=a}^{b} i = (b - a + 1) * (a + b)/2$

$$\frac{(2n-1-(n+2)+1)*(3n+1)}{2}$$

$$\frac{(2n-1-n-2+1)*(3n+1)}{2} = \underbrace{\frac{(n-2)(3n+1)}{2}}_{\text{linea 4}}$$

Linea 5

$$\sum_{i=n+1}^{2n-2} i = \frac{(2n-2-(n+1)+1)*(2n-2+n+1)}{2}$$

$$\frac{(2n-2-n+1+1)*(3n-1)}{2} = \underbrace{\frac{(n-2)*(3n-1)}{2}}_{\text{linea 5}}$$

$$\Rightarrow 1 + n-1 + n-2 + \frac{(n-2)(3n+1)}{2} + \frac{(n-2)(3n-1)}{2} + n-2$$

$$3n-4 + \left[\frac{3n^2+n-6n-2}{2}\right] + \left[\frac{3n^2-n-6n+2}{2}\right]$$

$$\boxed{3n-4 + \left[\frac{3n^2-5n-2}{2}\right] + \left[\frac{3n^2-7n+2}{2}\right]}$$

(6)

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I=1                    (1)
While (I<=n)           (n+1)
    J=1                (n)
    While (J<=i)
        J+=1
    I+=1               (n)
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Para (n = 5)

i	J	
1	1 no	2 1
		3 2
2	12 no	
3	123 no	4 3
4	1234 no	5 4
5	12345 no	n+1 5

$$\sum_{I=a}^{n+1} I = (b-a+1) * (a+b)/2$$

$$\frac{(n+1-2+1) * (n+3)}{2} = \boxed{\frac{(n) * (n+3)}{2}} \quad \text{linea 4}$$

$$\frac{(n-1+1) * (n+1)}{2} = \boxed{\frac{n(n+1)}{2}} \quad \text{Linea 5}$$

$$1 + n+1 + n + \left(\frac{n*(n+3)}{2}\right) + \frac{n(n+1)}{2} + n$$

$$\boxed{2 + 3n + \left[\frac{n^2+3n}{2}\right] + \left(\frac{n^2+n}{2}\right)}$$