$$1+1+\sum_{i=0}^{n-1}\left(1+2+1+\sum_{j=i}^{n-1}\left(1+2+1+1+\sum_{k=i}^{j}(1+2+2)+1+4\right)+1\right)+1 =$$

$$k_1+\sum_{i=0}^{n-1}k_2+\sum_{i=0}^{n-1}\sum_{j=i}^{n-1}k_3+\sum_{i=0}^{n-1}\sum_{j=i}^{n-1}\sum_{k=i}^{j}5 = k_1+k_2\sum_{i=0}^{n-1}1+k_3\sum_{i=0}^{n-1}\sum_{j=i}^{n-1}1+5\sum_{i=0}^{n-1}\sum_{j=i}^{n-1}\sum_{k=i}^{j}1$$

$$= k_1+k_2\sum_{i=1}^{n}1+k_3\sum_{i=0}^{n-1}\sum_{j=1}^{n-i}1+5\sum_{i=0}^{n-1}\sum_{j=i}^{n-1}\sum_{k=1}^{j-i+1}1 = k_1+k_2n+k_3\sum_{i=0}^{n-1}(n-i)+5\sum_{i=0}^{n-1}\sum_{j=i}^{n-1}(j-i+1)$$

$$= k_1+k_2n+k_3\sum_{i=1}^{n}(n-i-1)+5\sum_{i=0}^{n-1}\sum_{j=1}^{n-i}(j-i+1+i-1) =$$

$$= k_1+k_2n+k_3n\sum_{i=1}^{n} - k_3\sum_{i=1}^{n}i - k_3\sum_{i=1}^{n}1+5\sum_{i=0}^{n-1}\sum_{j=1}^{n-i}j =$$

$$k_1+k_2n+k_3n^2-k_3\frac{n(n+1)}{2}-k_3n+5\sum_{i=0}^{n-1}\frac{(n-i)(n-i-1)}{2}$$

$$= k_1+k_5n+k_6n^2+\frac{5}{2}\sum_{i=0}^{n-1}(n^2-n-2ni+i^2+i) = k_1+k_5n+k_6n^2+\frac{5}{2}\sum_{i=1}^{n}\left(n^2-n-2n(i-1)+(i-1)^2+(i-1)\right)$$

$$= k_1+k_8n+k_7n^2+\frac{5}{2}n^3-5n\sum_{i=1}^{n}i+\frac{5}{2}\sum_{i=1}^{n}i^2$$

//Summorna för värden som ej kommer ge n^3-termer räknas ej ut, men k-värdena uppdateras istället.

$$= k_1+k_{10}n+k_9n^2+\frac{5}{2}n^3-5n\frac{n(n+1)}{2}+\frac{5}{2}\cdot\frac{1}{3}n^3$$

$$= k_1+k_{10}n+k_{11}n^2+\frac{5}{2}n^3-\frac{5}{2}n^3+\frac{5}{6}n^3$$

$$= \frac{5}{6}n^3+k_{11}n^2+k_{10}n+k_1$$

$$\Rightarrow T(n)\in O(n^3)$$

$k_1 = 3$

$k_2 = 5$

$k_3 = 10$

$k_4 = N/A$

$k_5 = k_2 - \frac{k_3}{2} = 5 - \frac{10}{2} = 0$

$k_6 = k_3 - \frac{k_3}{2} = 10 - \frac{10}{2} = 5$

$k_7 = k_6 - \frac{5}{2} - \frac{15}{4} = -\frac{5}{4}$

$k_8 = k_5 = 0$

$k_9 = k_7 + \frac{5}{2}\cdot\frac{1}{2} = -\frac{5}{4}+\frac{5}{4} = 0$

$k_{10} = k_8 + \frac{1}{6}\cdot\frac{5}{2} = \frac{5}{12}$

$k_{11} = k_9 - \frac{5}{2} = -\frac{5}{2}$

$$\Rightarrow T(n) = \frac{5}{6}n^3-\frac{5}{2}n^2+\frac{5}{12}n+3$$