Task 1

$3 + \log(N)(5) + 1$

$5\log(N) + 4$

$5\log(N) + 4 \leq 6\log(n) + 4$

$N_0 \geq 1$ $C_1 = 6$ $O(\log(n))$

$\log(n) \leq 5\log(N) + 4$

$C_1 = 6$ $N_0 \geq 1$ $\Omega(\log(n))$

$\log(n) \leq 5\log(n) + 4 \leq 6\log(n) + 4$

$C_2 = 1$ $N_0 \geq 1$ $C_1 = 6$

Task 2

$1+1+1+1+1+1+N(3+N(3+N(6)+1)+1)$

$6N^3+4N+4$

$6 + 3N + 6N^3 + 4N^2 + 4N$

$6N^3 + 4N^2 + 7N + 6 \leq 10N^3 + N^2$

$N_0 \geq 2 \quad c_1 = 10$

$O(n^3)$

$N^3 \leq 6N^3 + 4N^2 + 7N + 6$

$c_1 = 1 \quad N_0 \geq 1$

$\Omega(n^3)$

$N^3 \leq 6N^3 + 4N^2 + 7N + 6 \leq 10N^3 + N^2$

$c_1 = 1 \qquad c_2 = 16$

$N \geq 2$

$\Theta(n^3)$