

}

add because for loop is not nested

for (int j=1; j<N; j=j²) { // $O(N^2 + N + \log N)$

a=3;

add because for loop is not nested

}

for (int i=1; i<N; i=i*2) { // $O(N + \log N)$

a=3;

add because for loop is not nested

}

Q2 \Rightarrow Big-O

for (int j=1; j<M; j++) {

// $O(M \times \log M + N^2 \times N + \log N)$
multiply because nested loop

for (int j=1; j<N; j=j²) {

// $O(N^2 \times N + \log N)$

for (int i=1; i<N; i=i*2) {

// $O(\log N) \Rightarrow O(N + \log N)$
multiply because nested loop

a=3;

}

}

}