Problem A. Live Love

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

DreamGrid is playing the music game *Live Love*. He has just finished a song consisting of n notes and got a result sequence $A_1, A_2, \ldots, A_n$ ($A_i \in \{\text{PERFECT, NON-PERFECT}\}$). The score of the song is equal to the *max-combo* of the result sequence, which is defined as the maximum number of continuous PERFECTs in the sequence.

Formally speaking, max-combo(A) = max $\{k \mid k$ is an integer and there exists an integer i $(1 \le i \le n - k + 1)$ such that $A_i = A_{i+1} = A_{i+2} = \cdots = A_{i+k-1} = \text{PERFECT}\}$. For completeness, we define $\max(\emptyset) = 0$.

As DreamGrid is forgetful, he forgets the result sequence immediately after finishing the song. All he knows is the sequence length n and the total number of PERFECTs in the sequence, indicated by m. Any possible score s he may get must satisfy that there exists a sequence A' of length n containing exactly m PERFECTs and $(n - m)$ NON-PERFECTs and max-combo$(A') = s$. Now he needs your help to find the maximum and minimum s among all possible scores.

Input

There are multiple test cases. The first line of the input contains an integer $T(1 \le T \le 100)$, indicating the number of test cases. For each test case:

The only line contains two integers n and m ($1 \le n \le 10^3$, $0 \le m \le 10^3$, $m \le n$), indicating the sequence length and the number of PERFECTs DreamGrid gets.

Output

For each test case output one line containing two integers s_{max} and s_{min}, indicating the maximum and minimum possible score.

Example

standard input	standard output
5 5 4 100 50 252 52 3 0 10 10	4 2 50 1 52 1 0 0 10 10

Note

Let's indicate a PERFECT as P and a NON-PERFECT as N.

For the first sample test case, the sequence (P, P, P, P, N) leads to the maximum score and the sequence (P, P, N, P, P) leads to the minimum score.