Kroot Hits the Gym

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Kroot was recently told to hit them gym. So, he did!

Kroot's gym has a very strange exercise, with n stairs forming a staircase $2 \leq n \leq 10^5$. However, the staircase is under maintenance, so there are some stairs that Kroot cannot step on.

If Kroot can move up to k stairs up with one step $1 \leq k < n$, find the minimum number of steps it will take Kroot to walk from step 1 to step n.

Input

The first line contains an integer t ($t \leq 20$). t test cases follow.

Each test case contains two lines. The first line contains two integers n and k.

The second line contains a binary string of length n, each character being either 0 or 1. 0 indicates that the stair can be used, and 1 indicates that the stair is under maintenance and cannot be stepped on. It is guaranteed that both stair 1 and stair n will be 0.

Output

Output the minimum number of steps Kroot needs to take in order to reach stair n from stair 1, or output -1 if there is no way to do so.

Example

standard input	standard output
4 2 1 00 4 2 0110 4 3 0110 10 3 0011000100	1 -1 1 4

Note

In the first example, we simply move forward once with 1 step.

In the second example, there is no way to move to stair n (middle two are blocked).

In the third example, we can move directly to stair n with 1 step.

In the last example, we move in this pattern: $1, 2, 5, 7, 10$.