Problem I
Insider's Identity

In a planet far far away, an intelligence agency plans to send some spies to the Earth to investigate the life there. In order to ensure the secret and secure of this scouting campaign, the agency gives a secret ID to each member.

Each ID is a binary string of length n. To prevent enemies from infiltrating the agency, they choose a pattern P, which is a string of `1` and $\star$, and decides that an ID is valid iff it *satisfies* this pattern P.

A binary string $S = s_1 s_2 \ldots s_n$ *satisfies* a pattern $P = p_1 p_2 \ldots p_m$ iff any of these conditions holds:

- $m = n$, and for each valid index i, either $s_i = 1$ or $p_i = *$.
- $m < n$, and at least one **substring** of S *satisfies* the pattern P.

For example:

- Both strings `101` and `111` satisfy the pattern `1*1`.
- These strings `0101110`, `1110000` and `1010111` satisfy the pattern `1*1`, since `101` and `111` are their substrings.
- The string `0100010` does not satisfy the pattern `1*1`.

The agency wants to know how many spies they can employ, if each member has a unique ID.

Input

- The first line contains one integer n $(1 \le n \le 50)$ — the length of a valid ID.
- The second line contains a string of at most 30 characters `1` and $\star$, where at least half of them are `1`s — the pattern P which all valid IDs must satisfy.

Output

Print a single integer — the maximum number of members in the agency, if each is assigned a unique valid ID.

Sample Input 1	Sample Output 1
10 1	1023

Sample Input 2	Sample Output 2
3 1*1	2