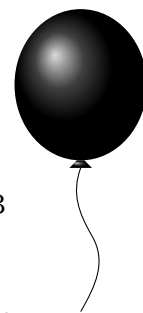


## B Weighing Scale

TIME LIMIT: 2.0s  
MEMORY LIMIT: 512MB



Little George has found an old-fashioned balance scale and a set of weights in the attic. The scale has two weighing pans and it allows you to check if the content of the left pan is heavier, lighter, or the same weight as the content of the right pan. The box where the weights were kept says that each of them weigh 10, 20, or 30 grams, but the faded paint makes it impossible to tell which is which.

George started playing with the scale by comparing one weight against another, and noting down all his results. After a while he got bored with that, and came up with a new experiment. He put the  $a$ -th and  $b$ -th weights on the left pan and tried to guess what would happen when he put another two weights on the right pan.

You are given a table with the results of the previous experiments. The  $j$ -th character of the  $i$ -th line represents the result of comparing the  $i$ -th weight against the  $j$ -th weight, and it can have one of four values:

- '+' — the  $i$ -th weight is heavier than the  $j$ -th weight.
- '-' — the  $i$ -th weight is lighter than the  $j$ -th weight.
- '=' — both weights have the same weight.
- '?' — the two weights weren't compared.

Calculate exactly three integers:

1. the number of different pairs of weights you can put on the right pan to make it lighter than the left pan;
2. the number of pairs to make both pans the same weight;
3. the number of pairs to make the left pan lighter.

Two pairs of weights are different if one pair contains at least one weight with an index that's not contained in the other pair. You should only consider the pairs that make the result unambiguously predictable based on the results in measures.

### INPUT

The first line contains an integer  $n$  — the number of weights ( $4 \leq n \leq 50$ ).

The following  $n$  lines contain  $n$  characters each describing a table of the experiments.

The following line contains an integer  $a$  — zero-base index of the first weight that George put on the left pan ( $0 \leq a \leq n - 1$ ).

The following line contains an integer  $b$  — zero-base index of the second weight that George put on the left pan ( $0 \leq b \leq n - 1$ ;  $a \neq b$ ).

There will exist at least one way to assign values to the weights that will match the results in the table.

The  $i$ -th character of the  $i$ -th line of the table is always '?'.  
 If the  $j$ -th character of the  $i$ -th line of the table is '+' then the  $i$ -th character of the  $j$ -th line will be '-' and vice versa.

If the  $j$ -th character of the  $i$ -th line of the table is '=' or '?' then the  $i$ -th character of the  $j$ -th line will be the same.

## OUTPUT

Print three lines, each containing a single integer:

1. First line containing the number of different pairs of weights you can put on the right pan to make it lighter than the left pan;
2. Second line — the number of pairs to make both pans the same weight;
3. Third line — the number of pairs to make the left pan lighter.

## SAMPLES

Sample input 1	Sample output 1
6 ?+???? -?+??? ?-???? ????+? ???-?+ ????-? 1 4	1 4 1

Sample input 2	Sample output 2
7 ?+????? -?+???? ?-????? ????+?? ???-?+? ????-?? ???????? 0 3	10 0 0

Sample input 3	Sample output 3
7	1
?+?????	4
-?+????	1
?-?????	
????+??	
???-?+?	
????-??	
????????	
1	
4	

Sample input 4	Sample output 4
4	1
??+?	0
???+	0
-???	
?-??	
0	
1	

Sample input 5	Sample output 5
5	3
??+??	0
???+?	0
-???=	
?-???	
??=??	
0	
1	

Sample input 6	Sample output 6
14 ?+???+?+? -??=?=??= ????=? ?=??+?==?? ???-???-???-? -=????? -??=???=?-+?? ???=+?=???? ????+???? ????+???? ??=???-???-? ????+????+?? -????? -=???? 6 2	1 10 36