Canada Day Contest 2021 - 0-1

Time limit: 1.0s   **Memory limit:** 512M

You have a quantum computer containing two binary strings s and t, both of length n. Every second, x of the n bits on s are randomly chosen and flipped. Find the probability that after K seconds, s will become t.

Input Specification

The first line contains three integers, n, x, and K.

The next line contains the string s.

The last line contains the string t.

Output Specification

Find the probability of turning s into t. If the probability is $\frac{A}{B}$, print $AB^{-1} \pmod{10^9 + 7}$. It can be proven that the result is rational.

Constraints

$0 \leq x \leq n, 0 \leq K, 1 \leq n$.

Subtask	Score	Constraints
1	10%	$n \leq 6, K \leq 100$
2	12%	$n \leq 7, K \leq 700\,000$
3	18%	$n \leq 10, K \leq 900\,000$
4	12%	$n \leq 16, K \leq 10^9$
5	48%	$n \leq 128, K \leq 10^9$

Sample Input 1

```
4 1 2
0000
0000
```

Sample Output 1

```
250000002
```

Explanation For Sample 1

The probability is $\frac{1}{4}$.

Sample Input 2

```
4 2 1
0000
0000
```

Sample Output 2

```
0
```

Sample Input 3

```
6 4 3
010000
100000
```

Sample Output 3

```
932444451
```

Sample Input 4

```
6 1 43
010000
011110
```

Sample Output 4

```
242545047
```

Sample Input 5

```
6 3 0
010000
010000
```

Sample Output 5

```
1
```

Sample Input 6

```
1 1 9
0
1
```

Sample Output 6

```
1
```