Expression again...

Coki loves numbers. Yet, he cannot use them. Alas, he is that smart...

Now he wants to calculate expressions! He has digits and a number. His task is to generate all valid mathematical expressions, that can be can be done with the digits by inserting operators '+', '*' or '-', between the digits, excluding at the begining and the end.

The expressions are calculated as the calculator does, i.e. `2 + 3 * 5 = 5 * 5 = 25`, not `2 + 15 = 17`

Example:

From 123 the valid expressions are:

```
1*2*3 = 6
1*2+3 = 5
1*2-3 = -1
1*23  = 23
1+2*3 = 9
1+2+3 = 6
1+2-3 = 0
1+23  = 24
1-2*3 = -3
1-2+3 = 2
1-2-3 = -4
1-23  = -22
12*3  = 36
12+3  = 15
12-3  = 9
123   = 123
```

Help Coki to count the expressions, that evaluate to the provided number

Input

The input will be on the standart input

- On the first line of the input you will find the sequence of digits
- On the second line of the input, you will find the number

The input will be valid and there is no need to check it explicitly

Output

- Print the output on the standart output
- On the first line print the number `K`

- The count of possible valid expressions

Constraints

- The digits will always be at most 14

Sample tests

Input

```
123
6
```

Output

```
2
```

Input

```
105
5
```

Output

```
4
```

Explanation

```
1+0+5 = 6
1+0-5 = -4
1+0*5 = 5
1-0+5 = 6
1-0-5 = -4
1-0*5 = 5
1*0+5 = 5
1*0-5 = -5
1*0*5 = 0
10+5  = 15
10-5  = 5
10*5  = 50
105   = 105
```

Input

```
000
0
```

Output

```
9
```

Explanation

```
0+0+0
0+0-0
0+0*0
0-0+0
0-0-0
0-0*0
0*0+0
0*0-0
0*0*0
```

Input

```
1111
1
```

Output

```
7
```