B. Hamming Distance Sum

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Genos needs your help. He was asked to solve the following programming problem by Saitama:

The length of some string s is denoted $|s|$. The Hamming distance between two strings s and t of equal length is defined as , where s_i is the i-th character of s and t_i is the i-th character of t. For example, the Hamming distance between string "0011" and string "0110" is $|0 - 0| + |0 - 1| + |1 - 1| + |1 - 0| = 0 + 1 + 0 + 1 = 2$.

Given two binary strings a and b, find the sum of the Hamming distances between a and all contiguous substrings of b of length $|a|$.

Input

The first line of the input contains binary string a ($1 \le |a| \le 200\,000$).

The second line of the input contains binary string b ($|a| \le |b| \le 200\,000$).

Both strings are guaranteed to consist of characters '0' and '1' only.

Output

Print a single integer — the sum of Hamming distances between a and all contiguous substrings of b of length $|a|$.

Examples

input
01 00111

output
3

input
0011 0110

output
2

Note

For the first sample case, there are four contiguous substrings of b of length $|a|$: "00", "01", "11", and "11". The distance between "01" and "00" is $|0 - 0| + |1 - 0| = 1$. The distance between "01" and "01" is $|0 - 0| + |1 - 1| = 0$. The distance between "01" and "11" is $|0 - 1| + |1 - 1| = 1$. Last distance counts twice, as there are two occurrences of string "11". The sum of these edit distances is $1 + 0 + 1 + 1 = 3$.

The second sample case is described in the statement.