

Problem F

Given are two Strings P1 and P2. Each of these strings contains a pattern of zeros and ones.

The string S(n) is formed by concatenating 1,000,000 copies of P1 followed by n copies of P2.

The infinite string S is formed by concatenating the strings S(1), S(2), S(3), ... in this order.

The string T consists of the first 10^{16} characters of the string S.

We are interested in substrings of T that are zeroCount characters long and contain only zeros. Write a method that finds the first occurrence of such a substring in T, and returns the zero-based index of its first character. In case T contains no such substring return -1.

- P1 will contain between 1 and 50 characters, inclusive.
- P2 will contain between 1 and 50 characters, inclusive.
- P1 and P2 will contain only zeroes ('0') and ones ('1').
- zeroCount will contain between 1 and 17 characters, inclusive.
- zeroCount will contain only digits ('0'-'9').
- zeroCount will represent a positive integer between 1 and 10^{16} , inclusive.
- zeroCount will not contain leading zeros.

See examples for input/output format.

F.IN

1

111010100001010

010000001000

3

F.OUT

7