

Given a binary string  $a_0a_1 \dots a_{n-1}$ , a *delicious* string  $b_0b_1 \dots b_{m-1}$  is defined to be another binary string with length  $m$  between 1 and  $n$ , such that for any number  $p$  with  $0 \leq p \leq n - m$ , the quantity below is even.

$$\sum_{k=0}^{m-1} a_{p+k} \wedge b_k$$

Here  $\wedge$  means **XOR**.

For this problem, calculate the total number of different delicious strings *modulo* 1000000007.

## Input

A number ( $\leq 600$ ) of binary strings  $S$ , one per line, where the length of  $S$  is between 1 and 50000.

## Output

Output the answer for each test case, one on each line.

## Sample Input

```
10110
11100
```

## Sample Output

```
24
23
```