

13220 Delicious Binary Strings

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 (≤ 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
```