

THE SATELLITE LAUNCH

For a space mission, ISRO is planning to launch a lot of satellites. Timings at ISRO are only shown by minutes. The mission lasts for 10000000 minutes. From day break ($t = 0$), they launch after 1 minute ($t = 1$), 4 minutes ($t = 4$), 16 minutes ($t = 16$), 64 minutes ($t = 64$), and so on; in other words, a new satellite departs at time 4^k for each integer $k \geq 0$. ISRO's chairman has arrived at the ISRO launch pad at the time S and he is trying to count how many satellite launches he has missed; in other words, the number of satellites that have launched strictly before time S . But there is another catch, S is a binary number. For example if $S = 10100$ which is **equivalent to decimal 20**, then he missed satellites which have launched at 1, 4 and 16^{th} minute. As you are the only one who knows the time, help them!

Input:-

- The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.
- The first and only line of each test case contains one integer S which is a binary number.

Output:-

- Output a single number — the number of trains which have departed strictly before the time S .

Constraints:-

- $1 \leq T \leq 10^3$
-
- $1 \leq \text{Length of } S \leq 18$

Sample:-

- Input:-

1

100000000

- Output:-

4

Time Limit – 1 sec

Author- Pulkrit Yadav