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 16th 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:-

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

Sample:-

- **Input:-**

  1

  100000000

- **Output:-**

  4

Time Limit – 1 sec

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