Problem B. Roman Master

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Little Cyan Fish, also known as Qingyu Xiao, loves all types of numbers. Today, he is learning the Roman numerals. Roman numerals are a numeral system that originated in ancient Rome and remained the usual way of writing numbers throughout Europe well into the Late Middle Ages. In this numeral system, numbers are written with combinations of letters from the Latin alphabet, each letter with a fixed integer value. In this problem, we will only consider the digits 1 to 8, and they are written in the following forms.

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
I	II	III	IV	V	VI	VII	VIII

For a given string consisting of only letters `I` and `V`, Little Cyan Fish would like to convert it to a single integer. To do that, he will first decompose the string into several separated substrings, so that each substring represents a digit from 1 to 8. Then, he will write down the digits in order to get the integer. For example, for the string `VIIIV`, Little Cyan Fish can decompose it into `VII` and `IV`. By looking up in the table above, the two substrings represent the digit 7 and the digit 4. He then gets the integer 74.



Now, Little Cyan Fish is wondering, for a given string S, what will be the minimum integer he could get by performing the process above. Please help him to find it!

Input

There are multiple test cases in a single test file. The first line of the input contains a single integer T ($1 \le T \le 10^5$), indicating the number of test cases.

For each test case, the input contains a single line containing a single string S ($1 \le |S| \le 10^5$, S contains only letters `I` and `V`).

It is guaranteed that the sum of $|S|$ over all test cases will not exceed 10^6.

Output

For each test case, output a single line containing a single integer, indicating the answer.

Example

standard input	standard output
3 II IVI VIIIIIV	2 16 634

Note

In the first test case, the Roman numeral `II` can be decomposed to [`I`, `I`] or [`II`], which corresponds to the integers 11 and 2, respectively. Therefore, the answer is 2.

In the second test case, the Roman numeral `IVI` can be decomposed to [`I`, `V`, `I`], [`IV`, `I`], and [`I`, `VI`], which corresponds to the integers 151, 41, and 16, respectively. Therefore, the answer is 16.