Time Limit: 1 second.
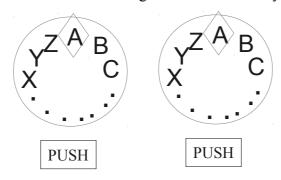
After scientists landed on Mars, they have found traces of ancient civilization. There is a hidden cave with an entrance requiring them to enter passwords. Strangely, the passwords are in English alphabets, i.e., they contain alphabets from 'A' to 'Z' with no spaces.

To type in the passwords, the scientists must use a special keyboard consisting of two alphabet wheels. Below each wheel, there is a button. When pushing the button below each wheel, only the alphabet at the top center of each wheel will be entered to the system. Initially, the alphabet 'A' is at the top center of each wheel. Below shows the image of this Martian keyboard.

Each wheel can be turned in either clockwise or counter-clockwise directions to the next alphabet, however the scientists must use one drop of water to do that. Since they are on Mars and do not have so much water supply, they would like to the minimum number of drops. If there was one wheel, this task would have been very easy. With two wheel, you probably have to help them out.

For example, to type in 'BYEBYE', the scientists can use only 12 drops of water as follows. First, use one drop of water to turn the left wheel in the counter-clockwise direction to type 'B'. Then turn the right wheel clockwisely to type 'Y' with 2 drops of water. Use another 3 drops of water to turn the left wheel counter-clockwisely to type 'E', another 3 drops to turn the left wheel clockwisely to 'B'. Note that to type 'Y', the scientists can just push the button on the right wheel. Finally, they have to use another 3 drops of water to turn the left wheel to 'E' to type the last alphabet. In total, they have to use 1+2+3+3+0+3 = 12 drops of water, and this is the best they can do.

Input
First line contains an integer **T**, the number of test cases (**1 <= T <= 10**). Then **T** test cases follow.

Each test case has only one line containing a string, the password to be typed. The string contains only alphabets 'A' – 'Z' and its length is at most 1000 characters.

Output

For each test case, the program should output the minimum number of drops of water needed to type each string.

Example

Input	Output
3	12
BYEBYE	58
YOUBELONGWITHME	40
HELLOWORLD	