Problem A. Another FizzBuzz Task

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Let us transform the sequence of positive integers $1, 2, 3, \ldots$ in the following way:

- if an integer is divisible by 15, it is replaced with "`FizzBuzz`",
- if an integer is divisible by 3 and is not yet replaced, it is replaced with "`Fizz`",
- if an integer is divisible by 5 and is not yet replaced, it is replaced with "`Buzz`",
- otherwise the integer is not replaced.

The beginning of the sequence will look as follows:

```
1 2 Fizz 4 Buzz Fizz 7 8 Fizz Buzz 11 Fizz 13 14 FizzBuzz 16 17 Fizz ...
```

Consider the infinite string F obtained by writing this sequence without spaces. Given a string L, find whether it appears as substring of F, and if it appears, find the 1-based index of first appearance.

Input

First line of the input contains one integer N, the number of test cases ($1 \le N \le 20$). Each of the next N lines contains one non-empty string L composed from digits and letters "`F`", "`B`", "`i`", "`u`", and "`z`". The length of this string does not exceed 15.

Output

For each test case, print -1 if the given string L does not appear in F as a substring, or the smallest possible 1-based index of its first element in F if it appears.

Example

standard input	standard output
6 1 78Fizz 68FizzBuzz71 FizzBu uzzBuz 987654321	1 16 208 18 -1 8358189296