DWITE '09 R4 #4 - Autocomplete

Time limit: 1.0s **Memory limit:** 64M

DWITE Online Computer Programming Contest, January 2010, Problem 4

Have you come across those online forms where you'd begin to type in a word, and it will give you suggestions as to how to end it? That's **autocomplete**. It matches the beginning of the word against the dictionary of known (or relevant) words, and makes suggestions. Since the dictionary that I want you guys to have will be too big for an input file, you'd have to make your own.

- Start with an array of $50\,000$ integers, from 0 to $49\,999$.
- For each element, multiply it by the sum of its digits, and take modulo $99\,999$.
- This is your dictionary.

It's important that we are working with the same "words" here, so to check that you are doing this right, here's an example: If the original seed is $12\,345$, then the resulting word is $(12\,345 \times 15)\ \%\ 99\,999 = 85\,176$. Here are some extra checks, at various indices of my dictionary:

- `dictionary[0] == 0`
- `dictionary[9] == 81`
- `dictionary[10] == 10`
- `dictionary[12345] == 85176`
- `dictionary[49999] == 99979`

The input will contain 5 lines, integers $0 \leq N \leq 49\,999$, prefixes of words being entered.

The output will contain 5 integer results, number of possible matches in the dictionary; that is number of words that have the input as a prefix (begin with that sequence) or are that word in full.

Note 1: words in the dictionary are not guaranteed to be unique. For example, $99\,990$ appears in the dictionary 3 times. All 3 of them would count towards the answer.

Note 2: be aware of the performance constraints. The judge will time out if you take too long.

Sample Input

```
10145
10144
10143
1008
9
```

Sample Output

```
0
1
2
12
5349
```

Problem Resource: DWITE