7. Mathabetical Order

Program Name: Mathabet.java **Input File: mathabet.dat**

Given a list of words, arrange them in ascending "mathabetical order". What is mathabetical order? Mathabetical order can be determined for a word by first substituting each letter with a number equal to its position in the alphabet (e.g., a=1, b=2, c=3, etc.) Comparisons are then made between two of the resulting numbers accordingly:

- First, a prime number is considered greater than a composite number.
- Next, if both numbers are primes or both are composites, an even number (divisible by 2) is considered greater than an odd number.
- Finally, if both numbers are equal in the two above categories, then they are compared numerically.

As an example, let's compare the words "`ag`", "`bury`", "`cry`", and "`dad`".

Word	Resulting number	Prime	Even
ag	17	Y	N
bury	2211825	N	N
cry	31825	N	N
dad	414	N	Y

Therefore the given words in ascending mathabetical order would be:

```
cry
bury
dad
ag
```

Input

- The first line will contain a single integer `w` that indicates the number of words to sort, 1 <= `w` <= 20.
- Each of the next `w` lines will contain a single word. For the purposes of this problem, a word will be a group of 1-4 lowercase letters.

Output

Output the given list of words in mathabetical order, with one word per line. Note that there will be no "ties" amongst the given words.

Example Input File

```
4
ag
bury
cry
dad
```

Example Output to Screen

```
cry
bury
dad
ag
```