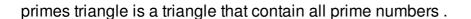
primes triangle (II)



you task is very easy given an integer from 1 to 10⁹ prints its place in the primes triangle.

Input

.....

in the first line integer 1<= T <= 10^4 , followed by T lines each line contain integer 1 <= 10^9 .

Output

one line contain pair of integers i, j .where i is the row number and j is the column number, 1 base . or -1 if n not exist in the primes triangle .

Example

Input:

....ŀ

3

23

4

Output:

2 1

4 3

-1