



Antiprime Numbers

locked



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An **antiprime number** is a number with a lot of divisors. Formally, a positive integer n is antiprime if and only if it has more divisors than any other positive integer smaller than n .

Given q queries where each query i is in the form of a single integer, a_i , find and print the smallest antiprime *not* smaller than a_i on a new line.

Input Format

The first line contains a single integer, q , denoting the number of queries. Each line i of the q subsequent lines contains a query in the form of a single integer, a_i .

Constraints

- $1 \leq q \leq 10^6$
- $1 \leq a_i \leq 10^7$

Output Format

For each of the q queries, print the smallest antiprime *not* smaller than a_i on a new line. This means there will be a total of q lines of output.

Sample Input

```
1
5
```

Sample Output

```
6
```

Explanation

We have one query: $a = 5$. We need to determine the smallest antiprime number ≥ 5 . Let's take a look at how many divisors each number has:

- 1** has only one divisor (itself).
- 2** has two divisors (**1, 2**). Because it has more divisors than any smaller positive integer (i.e., **1**), it is antiprime.
- 3** has two divisors (**1, 3**); this is not more than **2** has, so it is *not* antiprime.
- 4** has three divisors (**1, 2, 4**). Because it has more divisors than any smaller integer, it is antiprime.
- 5** has two divisors (**1, 5**); this is less than the number of divisors that **4** has, so it is *not* antiprime.
- 6** has four divisors (**1, 2, 3, 6**). Because it has more divisors than any smaller integer, it is antiprime.

Based on our analysis above, **6** is the smallest antiprime integer ≥ 5 . Thus, we print **6** on a new line.

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Submissions: 792

Max Score: 50

Difficulty: Medium

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C#  

```
1 using System;
2 using System.Collections.Generic;
3 using System.IO;
4 class Solution {
5     static void Main(String[] args) {
6         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be
           named Solution */
7
8         int q = int.Parse(Console.ReadLine());
9
10        StringBuilder sb = new StringBuilder();
11
12        while (q-- > 0)
13        {
14            int a = int.Parse(Console.ReadLine());
15
16            int[] antiprimos = { 1, 2, 4, 6, 12, 24, 36, 48, 60, 120, 180, 240, 360, 720, 840,
17                               1260, 1680, 2520, 5040, 7560, 10080, 15120, 20160, 25200, 27720, 45360, 50400, 55440, 83160, 110880,
18                               166320, 221760, 277200, 332640, 498960, 554400, 665280, 720720, 1081080, 1441440, 2162160, 2882880,
19                               3603600, 4324320, 6486480, 7207200, 8648640, 10810800 };
20
21            int ans = 0;
22            for (int i = 0; i < antiprimos.Length; i++)
23            {
24                if (antiprimos[i] >= a)
25                {
26                    ans = antiprimos[i];
27                    break;
28                }
29            }
30
31            sb.Append(ans);
32            sb.Append("\n");
33            // Console.WriteLine(ans);
34
35        }
36
37        Console.WriteLine(sb);
38    }
39 }
```

Line: 34 Col: 35

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