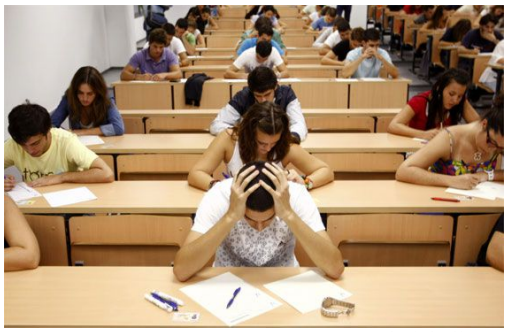
Grading on a Curve

Problem ID: gradingonacurve



"Don't worry, everyone does bad on his tests."

Professor Peggert is famous for his exams with low average / median scores and no extra credit. Despite this, his students' final grades (usually) turn out okay, as he boosts everyone's score by grading on a curve. Professor Peggert determines final grades by choosing a positive integer K and dividing each student's score by K to get a percentage representing that student's grade. For example, if a student scored 5 on a 12 point exam, and K is chosen to be 10, the student would have received a $5/K = 50\%$. He wants to choose a number K that satisfies the following conditions:

1. At least a quarter of the class should receive a final grade of 90% (A-) or better;
2. At least half of the class should receive a final grade of 80% (B-) or better;
3. At least three quarters of the class should receive a final grade of 70% (C-) or better.

Professor Peggert doesn't want to curve the grades too generously though, so he wants K to be as high as possible while satisfying the previous conditions. Note that the K chosen may be any positive integer, even if the chosen K results in some final grades being more than 100%.

Input

The first line contains two space-separated integers $1 \leq N, T \leq 100\,000$, where N is the number of students and T is the maximum possible score that a student can score on the test. Each of the following N lines contains an individual student's test score $0 \leq T_i \leq T$ where T_i is an integer.

Output

Output one line containing the highest number K that satisfies the conditions. Output -1 if no such number exists.

Sample Input 1

```
4 10
5
6
7
8
```

Sample Output 1

```
8
```

Sample Input 2

```
4 100
76
53
83
67
```

Sample Output 2

```
92
```

Sample Input 3

```
4 10
10
0
10
0
```

Sample Output 3

```
-1
```