UWPC

Question 17
Usman Catching Fish

Usman is a skilled fisherman who loves to catch fish. There are n nets of fish, and the ith net has a certain number of fish. Usman's fellow fishermen have temporarily left, and they will return in h hours.

Usman can decide his fish-catching speed, denoted by k fish per hour. Each hour, he selects a net of fish and catches k fish from that net. If the net has fewer than k fish, he catches all of them instead and will not catch any more fish during this hour.

Usman prefers a leisurely pace but still wants to finish catching all the fish before his fellow fishermen return.

Return the minimum integer k such that he can catch all the fish within h hours.

Input

- The first line contains a series of integers separated by spaces, representing the number of fish in each net.
- The second line contains a single integer representing the total number of hours (h) Usman has to catch all the fish.

Output

- A single integer, representing the minimum fish-catching speed (k) that allows Usman to catch all the fish within h hours.

Sample 1

Input

```
3 6 7 11
8
```

Output

```
4
```

Explanation: Usman has nets with 3, 6, 7, and 11 fish, and 8 hours to catch them all. If he catches 4 fish per hour, he can finish in 8 hours:

- First hour: Catches 4 fish from the net with 11 fish (remaining nets: 3, 6, 7, 7).
- Next four hours: Catches 4 fish each hour (remaining nets: 3, 3, 3, 3).
- Final three hours: Catches the remaining 3 fish from each net.

Hence, the minimum speed is 4 fish per hour.

Sample 2

Input

```
30 11 23 4 20
5
```

Output

```
30
```

Explanation:The nets have 30, 11, 23, 4, and 20 fish. Usman has 5 hours. The largest net has 30 fish, so Usman needs to set his speed to 30 fish per hour to ensure he can empty the largest net in one hour. This way, he can catch all the fish from each net in one hour each, totaling 5 hours.

Sample 3

Input

```
30 11 23 4 20
6
```

Output

```
23
```

Explanation: With 6 hours available, Usman can set a slightly slower pace. The most efficient strategy would be to catch 23 fish per hour, which is the second-largest amount in a single net. This allows him to clear each net in at most one hour, with the last hour to catch the remaining 7 fish from the largest net.