1870. Minimum Speed to Arrive on Time

Description

You are given a floating-point number `hour`, representing the amount of time you have to reach the office. To commute to the office, you must take `n` trains in sequential order. You are also given an integer array `dist` of length `n`, where `dist[i]` describes the distance (in kilometers) of the `i th` train ride.

Each train can only depart at an integer hour, so you may need to wait in between each train ride.

- For example, if the `1 st` train ride takes `1.5` hours, you must wait for an additional `0.5` hours before you can depart on the `2 nd` train ride at the 2 hour mark.

Return *the* ***minimum positive integer*** *speed* ***(in kilometers per hour)*** *that all the trains must travel at for you to reach the office on time, or* `-1` *if it is impossible to be on time*.

Tests are generated such that the answer will not exceed `10 7` and `hour` will have **at most two digits after the decimal point**.

Example 1:

```
Input: dist = [1,3,2], hour = 6
Output: 1
Explanation: At speed 1:
- The first train ride takes 1/1 = 1 hour.
- Since we are already at an integer hour, we depart immediately at the 1 hour mark. The second train takes 3/1 = 3 hours.
- Since we are already at an integer hour, we depart immediately at the 4 hour mark. The third train takes 2/1 = 2 hours.
- You will arrive at exactly the 6 hour mark.
```

Example 2:

```
Input: dist = [1,3,2], hour = 2.7
Output: 3
Explanation: At speed 3:
- The first train ride takes 1/3 = 0.33333 hours.
- Since we are not at an integer hour, we wait until the 1 hour mark to depart. The second train ride takes 3/3 = 1 hour.
- Since we are already at an integer hour, we depart immediately at the 2 hour mark. The third train takes 2/3 = 0.66667 hours.
- You will arrive at the 2.66667 hour mark.
```

Example 3:

```
Input: dist = [1,3,2], hour = 1.9
Output: -1
Explanation: It is impossible because the earliest the third train can depart is at the 2 hour mark.
```

Constraints:

- `n == dist.length`
- `1 <= n <= 10 5`
- `1 <= dist[i] <= 10 5`
- `1 <= hour <= 10 9`
- There will be at most two digits after the decimal point in `hour`.