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Fight the Monsters!

H by philipsweng

| Problem | Submissions | Leaderboard | Discussions |

Your submission will run against only preliminary test cases. Full test cases will run at the end of the day.

Jason is trapped in a forest with n hungry monsters and must use his trusty blaster to defend himself! Each monster i has a health value, h_i. Jason can discharge his blaster at a monster once per second and reduce its health points by hit units. Once a monster's health points become ≤ 0, it dies.

Given the health values for each monster and an integer, t, can you determine the maximum number of monsters he can kill in t seconds? Assume Jason always hits his target!

Input Format

The first line consists of three space-separated integers describing the respective values of n, hit, and t.
The second line consists of n space-separated integers describing the values of $h_0, h_1, \ldots, h_{n-1}$.

Constraints

- $1 \le n \le 10^5$
- $1 \le hit \le 10^9$
- $1 \le t \le 10^9$
- $1 \le h_i \le 10^9$

Output Format

Print an integer denoting the maximum number of monsters Jason can kill in t seconds.
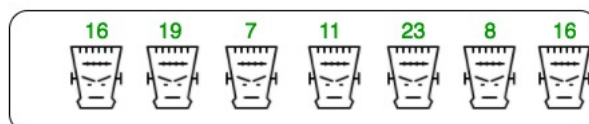
Sample Input 0

```
7 8 6
16 19 7 11 23 8 16
```
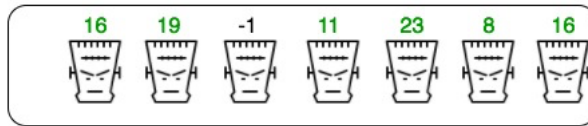
Sample Output 0

```
4
```

Explanation 0

We want to find the maximum number of monsters we can kill in $t = 6$ seconds using a blaster that does $hit = 8$ units of damage per second. The diagram below depicts the array of initial health values, $h = [16, 19, 7, 11, 23, 8, 16]$:
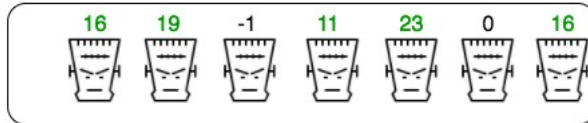
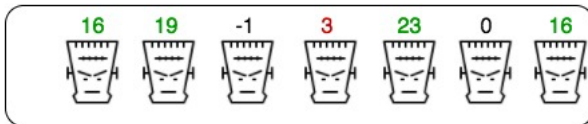

The optimal approach is as follows:

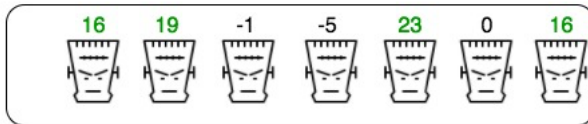1. Shoot monster 2 so $h_2 = 7 - 8 = -1$, monster 2 dies, and h becomes $[16, 19, -1, 11, 23, 8, 16]$:

| 16 | 19 | -1 | 11 | 23 | 8 | 16 |

2. Shoot monster 5 so $h_5 = 8 - 0 = 0$, monster 5 dies, and h becomes $[16, 19, -1, 11, 23, 0, 16]$:

| 16 | 19 | -1 | 11 | 23 | 0 | 16 |

3. Shoot monster 3 so $h_3 = 11 - 8 = 3$ and h becomes $[16, 19, -1, 3, 23, 0, 16]$:

| 16 | 19 | -1 | 3 | 23 | 0 | 16 |

4. Shoot monster 3 again so $h_3 = 3 - 8 = -5$, monster 3 dies, and h becomes $[16, 19, -1, -5, 23, 0, 16]$:

| 16 | 19 | -1 | -5 | 23 | 0 | 16 |

5. Shoot monster 0 so $h_0 = 16 - 8 = 8$ and h becomes $[8, 19, -1, -5, 23, 0, 16]$:
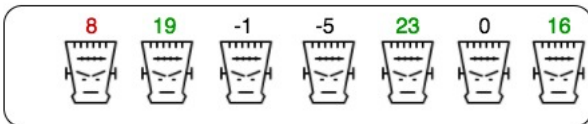
| 8 | 19 | -1 | -5 | 23 | 0 | 16 |

6. Shoot monster 0 again so $h_0 = 8 - 8 = 0$, monster 0 dies, and h becomes $[0, 19, -1, -5, 23, 0, 16]$:

| 0 | 19 | -1 | -5 | 23 | 0 | 16 |
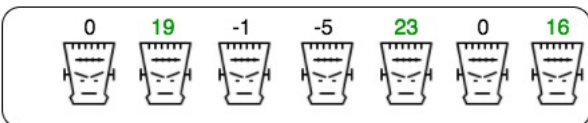
Thus, we print 4 as the maximum number of monsters we can kill in the given time period.

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Contest ends in 6 days

Submissions: 768
Max Score: 20
Difficulty: Easy

Rate This Challenge:
★★★★★

More

| Current Buffer (saved locally, editable) ⅄ 🕘 | | C# ⌄ | ⤢ ⚙ |

```
1  using System;
2  using System.Collections.Generic;
3  using System.IO;
4  using System.Linq;
```

```
 5 ▼ class Solution {
 6
 7 ▼     static int getMaxMonsters(int n, int hit, int t, int[] h){
 8             // Complete this function
 9            Array.Sort(h);
10               int seconds = 0;
11               int eliminados = 0;
12               for (int i = 0; i < n; i++)
13 ▼             {
14                   while (h[i] > 0)
15 ▼                 {
16                       h[i] -= hit;
17                       seconds++;
18
19                       if (h[i] <= 0) eliminados++;
20
21                       if (seconds == t) return eliminados;
22                   }
23
24               }
25               return eliminados;
26         }
27
28 ▼     static void Main(String[] args) {
29             string[] tokens_n = Console.ReadLine().Split(' ');
30             int n = Convert.ToInt32(tokens_n[0]);
31             int hit = Convert.ToInt32(tokens_n[1]);
32             int t = Convert.ToInt32(tokens_n[2]);
33             string[] h_temp = Console.ReadLine().Split(' ');
34             int[] h = Array.ConvertAll(h_temp,Int32.Parse);
35             int result = getMaxMonsters(n, hit, t, h);
36             Console.WriteLine(result);
37         }
38 }
39
```

Line: 25 Col: 31

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

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