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Finding Writers

Problem   Submissions   Leaderboard   Discussions

Arnav is setting up a meeting of programming contest writers. At the start of the meeting, every pair of contest writers shakes hands. Each handshake takes 1 second.

He wants to get as many writers as possible to make the work on any individual not as bad, but if there's too many people, then introductions take more time. Furthermore, for every X people (rounded down), he has to waste k more seconds finding a larger room.

Given an upper bound on the amount of time Arnav wants to spend on this, compute the maximum number of authors that Arnav can invite.

HINT: The number of handshakes in a group of n people is $n * (n-1)/2$.

Grading

Correctness & Efficiency: 80%

- Passes 40 test cases: 80%

- Passes 30 to 39 test cases: 60%

- Passes 20 to 29 test cases: 40%

- Passes 1 to 19 test cases: 20%

- Passes 0 test cases: 0%

Code Quality: 20%

Input Format

The first line will consist on a single integer, T, the number of test cases. The next T lines will each contain a test case with three space separated numbers NXK, the maximum amount of time Arnav wants to spend on handshakes and room finding, the intervals at which Arnav needs to find larger rooms, and how much extra time it takes for him to find larger rooms.

Constraints

$1 \leq T \leq 20$

$0 \leq N \leq 10^{18}$

$1 \leq X \leq 10^9$

$0 \leq K \leq 10^9$

$K * N \leq 10^{18}$

Output Format

For each test case, print out the maximum number of people that Arnav can invite.

Sample Input 0

```
1
15 1 0
```

Sample Output 0

```
6
```

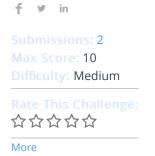### Sample Input 1

```
1
10 3 2
```

Sample Output 1

```
4
```

Sample Input 2

```
1
12345123451234512 281 120
```

Sample Output 2

```
157131304
```

Current Buffer (saved locally, editable)

C++

```cpp
#include <cmath>
#include <cstdio>
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;


int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}

```

Line: 1 Col: 1

Upload Code as File

☐ **Test against custom input**

Run Code

Submit Code