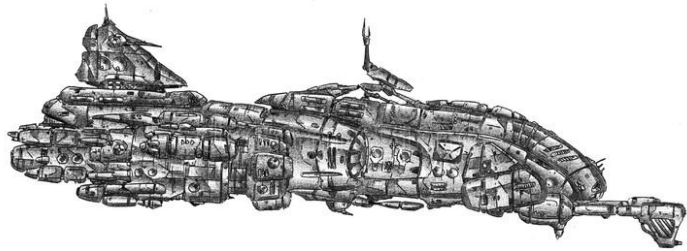


Frisco FirstBytes
Beginner Problem Set
2018

Q. Distress Call

The *Statesman* has been attacked by Thanos. The ship's damage control officer has relayed to you the number of casualties (so far). As the *Statesman* carries 1000 refugees, how many remain alive? Issue a distress call, include the number of survivors.



The Input:

A single integer, the number of casualties.

The Output:

Print out a distress call, including the number of survivors.

Example:

Input

400

Output

Help! The Statesman is under attack! We have 600 survivors.

R. How many will it take?

Thanos' legions are attacking Birnin Zana, capital city of Wakanda, and you are defending at the city's energy shield. The shield has energy density of 1.21 GW (gigawatts) per square meter, and each attacker can dissipate 100 MW (megawatts). If enough attackers concentrate on one point, they can break through, but the shield regenerates after a few seconds, so they must attack at the same time. Monitor your section of the shield and count the numbers of attackers. If they break through, send a warning message; if they don't, signal all clear.



The Input:

1 integer, the number of attackers at your zone.

The Output:

Print your scouting report.

Example 1:

Input

10

Output

All is well.

Example 2:

Input

14

Output

They've broken through!

These are 2 *examples* of possible outcomes. Your program only counts one attack!

S. Rescue

Dr. Strange has been abducted by Ebony Maw, and Stark & Spider-Man are pursuing the Q-ship. The ship is climbing quickly to space, and the heroes' suits are losing strength quickly; will the 3 be able to defeat Ebony Maw?



Read 4 strength values for Maw, Strange, Stark, and Spider-Man. If Maw wins, the time stone is lost (along with 3 avengers). If the ship is destroyed by too much fire-power, all die and the stone is lost in space. If the 3 together outmatch Maw by no more than twice his power, we are saved (for now).

Hero strength < Maw strength Uh-oh!

Hero strength > Maw strength We win!

Hero strength > Maw strength * 2 Everyone dies!

Notes: Unlike in the Marvel universe, there will be no ties.

Maw will never be twice the heroes' strength – not a Marvelous outcome!

The Input:

The 1st integer is Maw's strength. This is followed by 3 integers, each the strength of a good guy.

The Output:

Print the result of the rescue (one of the 3 messages).

Example 1:

Input

100
40
40
10

Output

The time stone is lost!

Example 2:

Input

100
40
40
30

Output

We win!

Example 3:

Input

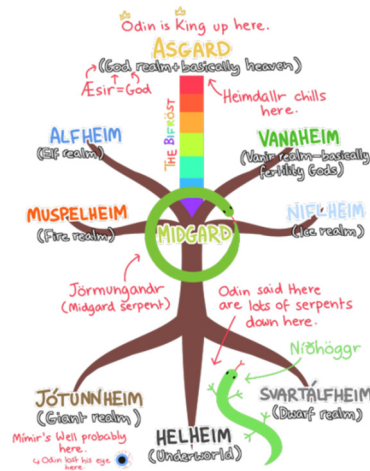
50
80
70
60

Output

Aiee!

These are 3 *examples* of possible outcomes. Your program only prints one result!

T. Yggdrasil



Thor needs to visit each of the nine realms to recruit warriors for the battle against Thanos. Since the Bifrost Bridge isn't available, he must use a primitive spacecraft. Because you are a wizard of numbers, you have volunteered to navigate. Calculate the total distance needed to visit every realm in the order given (Thor specifies the order).

You know how to calculate the straight line distance between 2 points in space – from your Geometry class, right?

$$d = ((x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2)^{1/2}$$

The Input:

There are 9 lines of input. The 1st is the starting realm, followed by 8 lines for the sequence of visits. Each line contains 3 integers (x, y, z) for the realm's position in the universe, followed by the name of the world. All units are in *rôst*.

The Output:

Print the total calculated distance for the tour (ending at the last realm on the list), rounded to the nearest whole number.

Example:

Input

```
1000 1000 500 Asgard
100 2000 100 Alfheimr
100 2000 100 Nioavellir
100 2000 100 Midgard
500 500 1000 Jotunheimr
200 500 500 Vanaheim
300 200 500 Niflheim
100 100 200 Muspelheim
100 200 100 Helheimr
```

Output

The tour is 4613 rôst.

U. Black Widow

Natasha Romanov (aka Black Widow) is consulting with you on her new logo design. She wishes to create a shape resembling an hourglass made up of two triangles, connected at a singular point. She's not sure how large she wants to make the design, so she asks you to write a program to display the logo of various sizes so she may judge them.



Tony's also being a bit stingy with the budget right now – Tasha suspects he and Pepper are having a row – and wants to keep track of just how many embroidery marks you're going to use with the design.

Given the height of each triangle, construct a solid, inverted triangle pattern until its apex. Continue constructing the second, hollow triangle of equal size. As a mock up, she hands you the following examples.

The Input:

One integer, the height of each triangle.

The Output:

Print the hourglass and the number of embroidery marks.

Example 1:

Input

6

Output

```
*****
 *****
  *****
   *****
    *****
     *****
      *
     * *
    *  *
   *   *
  *    *
 *     *
*****
55
```

Example 2:

Input

3

Output

```
*****
 ***
  *
 * *
*****
16
```

V. Experience

The tour of the 9 worlds is long and mostly boring. One of the ridiculous discussions you've heard concerns who has the most battle experience. That made you wonder: how much fighting have these Asgardians done? They each tell you how much time has passed since their first battle; your job is to determine how many years that represents. Of course, it's never simple with these warriors – they insist on exact values, and they live a very long time (if they survive the fighting). [Asgardians have a 365 day year – sort of.]



The Input:

The input contains 5 *very* long integers on 5 lines. Each represents the number of minutes since each warrior's first fight.

The Output:

Print "We've been fighting for xxx years." where xxx represents the total.

Example:

Input

```
56792114678
792001265
679572114678
12655679200
14675679218
```

Output

```
We've been fighting for 1454504 years.
```

W. How Many Futures?



How to defeat Thanos? Dr. Strange is searching for the right plan by observing millions of timelines. How many timelines will result in no lives lost to Thanos? Input the number of futures checked then input how many lives would be lost for each future. Tell us how many futures have good outcomes.

The Input:

The first line contains a single integer, n , the number of futures to check. The maximum value for n is 100 (get real, we're not checking 14,000,605 of them). Each of the following n lines has a number for how many die (never more than 2 billion).

The Output:

Print the number of futures with zero deaths.

Example:

Input

```
3
1000000000
0
500000000
```

Output

```
Number of good futures = 1
```


X. Lost

The nightmare is real. Half of your world is gone. How many of your friends have disappeared? Who remains? These are your close friends:

Adam
Bambi
Calvin
Deb
Ernie



Write a program to scan the list of known survivors and print the results.

The Input:

The first line contains a single integer n , the number of known survivors to check. Each of the following n lines contains one person's name. There are no duplicate names in the list and no two people have the same name.

The Output:

Print the number of friends missing and the names of your friends found in the format shown below (listed in the order found). If none were found, print the "Friends found:" message, but with no names below.

Example:

Input

```
10
Adam
Bill
Deb
Ed
Ernie
John
Kevin
Larry
Monique
Nance
```

Output

```
Friends missing: 2
Friends found:
Adam
Deb
Ernie
```

Y. The Message

On Titan, Dr. Strange turns to dust, but not before telling Stark it was the only way. Later, Tony is surprised to find a coded message left by Strange.



Stark isn't thinking clearly right now, so help him decode the message. You know that Strange didn't have a lot of time (get it?) to do anything fancy, so you decide to try a few simple cyphers. You found the answer was a simple transposition cypher – swap the 1st and 2nd letters, 3rd & 4th, 5th & 6th, etc.

The Input:

One line of text containing the encoded message, which has only lowercase letters (and no spaces or symbols).

The Output:

Print the decoded message.

Example:

Input

tiawtsehnolawy

Output

itwastheonlyway