Competitive Programming SS24

Submit until end of contest

Problem: castaway (1 second timelimit)

Many years ago you were stranded on a lonely island, and you have been living there ever since. You don't feel lonely though, as over the years you created a massive amount of imaginary friends. For example there are Greg, Timethy, Lara and of course Wilson. Actually, you are quite happy with your situation. There are nice friends and a never-ending supply of coconuts. You can go sunbathing whenever you want, and you don't have to talk to real humans.

Your best friend Wilson. By Animalia

But there is one thing that you are missing: Cake. You thought about it every day and now it is time to get it! For that, you must get to a more populated island. But how?

You could fly there, but a flight was what brought you to this island in the first place. So this will never be an option again. You could swim, you are a perfect swimmer, but Wilson fears the water. Maybe you should bake your own cake, but it would not be the same. After a long consideration, you have come up with the only realistic plan: You want to build a boat out of tiles.

To be hydrodynamic, the boat should be exactly 2 tiles wide. On the other hand, it has to be as long as possible, so that you can take all your friends with you. There are three types of pieces that you can use to build the boat:

- A *square*, made out of 4 tiles arranged in a 2×2 grid.

- An *S-tile*, made out of 4 tiles, 2 on one row and 2 on the other row with an offset of 1 tile to the first.

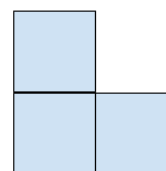- A *corner*, made out of 3 tiles, 1 on one row and 2 on the other row.

Tiles may be rotated 0, 90, 180, or 270 degrees to fit each other, however, they cannot overlap or go outside the vertical boundary of the boat.
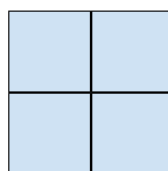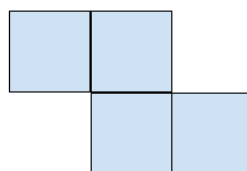
Square   S-tile   Corner

You and your friends collected a squares, b S-tiles, and c corners. How long can you make the boat? That is, what is the largest-possible contiguous $2 \times n$ rectangle constructed out of some or all of the provided pieces, where no used pieces overlap or stick out of the rectangle?

Input

- One line with three integers a, b, and c ($0 \leq a, b, c \leq 50$), the number of squares, S-tiles, and corners.

Output   Output the maximum possible length of the boat, that can be perfectly filled with some or all of the given pieces without overlapping or overstepping the boundaries.

Sample Input 1	**Sample Output 1**
2 2 2	11

Sample Input 2	**Sample Output 2**
1 1 1	2

Sample Input 3	**Sample Output 3**
0 0 0	0