Molecules

Time limit: *1000 ms*
Memory limit: *256 MB*

As you may remember, in the IEEEXtreme 10.0 there was a challenge called Counting Molecules. In that challenge, you had a machine that counted the number of molecules in a cup of soda which contains distilled water (H_2O), carbon dioxide (CO_2), and glucose ($C_6H_{12}O_6$). Given a cup of sample liquid, the machine reported the number of atoms of carbon, hydrogen, and oxygen as three integers C, H, and O respectively. You were asked to determine if the given number of atoms was consistent with a mixture containing only water, carbon dioxide, and glucose molecules. The answer could be `Error` when it was impossible to have a mixture of only water, carbon dioxide, and glucose molecules with the reported numbers of atoms.

In this challenge, you have the same machine that reports C, H, and O for a given liquid sample. We ask you to find the smallest number of atoms that needs to be added and/or discarded so that it is possible that the sample is a mixture of only water, carbon dioxide, and glucose.

Standard input

The input contains a single integer T on the first line, the number of test cases.

Each of the next T lines has three integers C, H, and O giving one test case.

Standard output

For each test case output the minimum number of atoms that needs to be added and/or discarded so that the sample becomes possibly a mixture of only water, carbon dioxide, and glucose. When the given numbers of atoms can already form a mixture of only water, carbon dioxide, and glucose, output zero.

Constraints and notes

- $1 \leq T \leq 40$
- $0 \leq C, H, O \leq 10^6$
- It is allowed to discard all atoms. Zero atoms are considered a valid (empty) mixture.

Input	Output	Explanation
4 2 2 2 126 482 255 0 200 0 0 2 1	2 1 100 0	• Test case 1: Adding one oxygen atom and removing a carbon atom makes it possible to be a mixture of 1 water molecule and 1 carbon dioxide molecule. • Test case 2: 7 molecules of CO_2, 121 molecules of water and 20 molecules of glucose give $7 + 6 * 20 = 127$ carbon atoms, $2 * 121 + 12 * 20 = 482$ hydrogen atoms, and $2 * 7 + 1 * 121 + 6 * 20 = 255$ atoms of oxygen, yielding only one extra atom (carbon). • Test case 3: We may add 100 oxygen atoms to have 100 water molecules. • Test case 4: Without adding or discarding any atoms, a single water molecule may have the given atoms.