The 2021 Freshman Programming Contest

Hunan University

Problem B

Rain_w and Equation

Time Limit: 1 second Memory Limit: 256 MB

Description

Rain_w wants to solve some Equations. Firstly, Rain_w will give you an integer $\boldsymbol{T}$, - the number of Equations. Then for the i-th equation, Rain_w will give you four integers $\boldsymbol{a_i, b_i, c_i, d_i}$. She wants you to find two positive integers $\boldsymbol{e_i, f_i}$, such that $\boldsymbol{e_i^2 + f_i^2 = (a_i^2 + b_i^2)(c_i^2 + d_i^2)}$. Since Rain_w doesn't like big integers, she hopes that $\boldsymbol{e_i}$ and $\boldsymbol{f_i}$ are not bigger than $\boldsymbol{4 \times 10^{18}}$. Please help her!

Input

The first line contains a single integer $T(1 \le T \le 10^4)$ - the number of equations.
Next T lines, the i-th line contains four integers $a_i, b_i, c_i, d_i(1 \le a_i, b_i, c_i, d_i \le 10^9)$ separated by space. It is guaranteed that $(a_i - b_i)^2 + (c_i - d_i)^2 \neq 0$. And it can be proved that the solutions satisfied the conditions are always existed.

Output

The output should contain T lines. The i-th line should contains two integers $e_i, f_i(1 \le e_i, f_i \le 4 \times 10^{18})$ separated by a space. If it has multiple solutions, you can print any of them.

Sample Input	Output for Sample input
3 1 1 1 2 1 2 3 4 19 26 8 17	3 1 10 5 470 381