Problem Q. My Problem!!!

Time Limit 1000 ms
Mem Limit 262144 kB

YouKnowWho has two **even** integers x and y. Help him to find an integer n such that $1 \leq n \leq 2 \cdot 10^{18}$ and $n \bmod x = y \bmod n$. Here, $a \bmod b$ denotes the remainder of a after division by b. If there are multiple such integers, output any. It can be shown that such an integer always exists under the given constraints.

Input

The first line contains a single integer t ($1 \leq t \leq 10^5$) — the number of test cases.

The first and only line of each test case contains two integers x and y ($2 \leq x, y \leq 10^9$, both are **even**).

Output

For each test case, print a single integer n ($1 \leq n \leq 2 \cdot 10^{18}$) that satisfies the condition mentioned in the statement. If there are multiple such integers, output any. It can be shown that such an integer always exists under the given constraints.

Examples

Input	Output
4 4 8 4 2 420 420 69420 42068	4 10 420 9969128

Note

In the first test case, $4 \bmod 4 = 8 \bmod 4 = 0$.

In the second test case, $10 \bmod 4 = 2 \bmod 10 = 2$.

In the third test case, $420 \bmod 420 = 420 \bmod 420 = 0$.