

Equal Totients

Input file: *standard input*
Output file: *standard output*
Time limit: 3 seconds
Memory limit: 1024 mebibytes

Let $\phi(n)$ denote Euler's totient function: the number of integers in $[1, n]$ that are coprime to n .

You are given two integers ℓ and r with $r \geq \frac{5\ell}{3}$. Find two distinct integers x and y with $\ell \leq x, y \leq r$ such that $\phi(x) = \phi(y)$, or report that no such pair exists.

Input

The first line contains a single integer t ($1 \leq t \leq 20$): the number of test cases.

Each of the next t lines contains two integers ℓ and r ($1 \leq \ell < r \leq 10^{17}$) describing one test case. It is guaranteed that $r \geq \frac{5\ell}{3}$.

Output

For each test case, print two integers x and y ($\ell \leq x, y \leq r, x \neq y$) such that $\phi(x) = \phi(y)$, or “-1 -1” if no such pair exists. If there are multiple valid pairs, print any one of them.

Example

<i>standard input</i>	<i>standard output</i>
5	1 2
1 3	5 8
5 10	15 16
15 30	21 26
21 50	52 56
50 100	