

Problem B. Welcome to Math Kingdom!

Input file: standard input
Output file: standard output
Time limit: 4 seconds
Memory limit: 1024 megabytes

You know you are now in HSFZ, the famous math kingdom. So you have to solve some math problems.

You are given two positive integers p, q . Your task is to construct positive integers a, b, c, d such that $1 \leq a, b, c, d \leq 10^7$ and $\frac{a^3 + b^3}{c^3 + d^3} = \frac{p}{q}$.

Input

Each test contains multiple test cases. The first line contains one integer t ($1 \leq t \leq 10^6$), indicating the number of test cases.

For each test cases, only one line contains two integers p, q ($1 \leq p, q \leq 10^4$).

Output

For each test case, output one line contains four integers a, b, c, d ($1 \leq a, b, c, d \leq 10^7$).

It can be proved that a solution always exist under above constraints.

Examples

standard input	standard output
2	1 1 1 1
1 1	1 2 1 3
9 28	