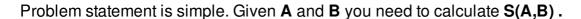
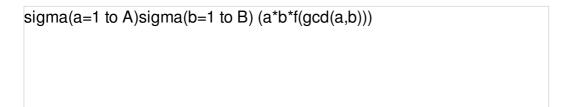
Trending GCD





Here, f(n)=n, if n is square free otherwise 0. Also f(1)=1.

Input

The first line contains one integer **T** - denoting the number of test cases.

T lines follow each containing two integers A,B.

Output

For each testcase output the value of S(A,B) mod 100000007 in a single line.

Constraints

- T <= 1000
- 1 <= A,B <= 1000000

Example

Input:

3

42 18

35 1

20 25

Output:

306395

630

128819