

Yet Another Subsequence Problem

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

For any two positive integers a and b , define the function by the following C++ code:

```
std::string gen_string(int64_t a, int64_t b) {  
    std::string res;  
    int64_t ia = 0, ib = 0;  
    while (ia + ib < a + b) {  
        if ((__int128)ia * b <= (__int128)ib * a) {  
            res += '0';  
            ia++;  
        } else {  
            res += '1';  
            ib++;  
        }  
    }  
    return res;  
}
```

ia will equal a and ib will equal b when the loop terminates, so this function returns a bitstring of length $a + b$ with exactly a zeroes and b ones. For example, $gen_string(4, 10) = 01110110111011$.

Given the argument of A, B , you should calculate the number of different subsequences of $gen_string(A, B)$, and print it modulo 998244353.

NOTE: A sequence a is a subsequence of a string b if a can be obtained from b by deleting several (possibly, zero or all) elements.

Input

The first line contains T ($1 \leq T \leq 100$), the number of independent test cases.

Each of the next lines contains two integers A and B ($1 \leq A, B \leq 10^{18}$).

Output

Output the number of different subsequences of $gen_string(A, B)$ modulo 998244353.

Examples

standard input	standard output
6 1 1 3 5 4 7 8 20 4 10 27 21	4 70 264 196417 609 667131122
18 5 9 23 30 820 483 5739 9232 86494 55350 606 13336 2768848 1124639 47995594 66053082 1069395 7177 7801842511 4390103762 47882886553 82678306054 193410894 6189355686 51594638 19992922190 59 110 422735115778072 658356435030265 9125338158530266 5328357177709583 60743352262021049 95595862538791630 629312141725417942 999581828389011547	988 220693002 133474535 202371605 778839228 282057418 935955056 943144752 409056617 627433544 578769776 917438628 24364208 109943645 352575425 68058533 402004723 894026897