

Problem A. I will win

Input file: **standard input**
 Output file: **standard output**
 Time limit: 1.5 seconds
 Memory limit: 256 megabytes

Your participating a tournament. The tournament consists of n games. Your probability to win a game is $\frac{p}{q}$. Initially your rank in the tournament is $n + 1$. If you win a game your rank will decrease by 1. If you lose a game, you rank will increase by 1. What is the probability that you will win the tournament (i.e. your rank will be 1)? Print answer modulo $10^9 + 7$.

Input

The first line contains one integer $T (1 \leq T \leq 2 \cdot 10^5)$ — number of testcases.

Each of the next T lines contain three integers — n, p, q ($1 \leq n, p, q \leq 10^{18}$), ($p \leq q$).

Output

For each test case print your probability of winning the tournament. If it is $\frac{x}{y}$ print $x \cdot y^{-1}$ modulo $10^9 + 7$.

Example

standard input	standard output
4	1
10000 1 1	1
1000000000000000000 2 2	250000002
2 1 2	100777456
1000000000000000000 900000000000000000	1000000000000000000

Note

In the first test case, you will win every game, so answer is 1.

In the second test case, probability is $\frac{1}{4}$. So the answer will $1 \cdot 4^{-1}$ modulo $10^9 + 7$. Modular inverse of 4 (mod 10000007) is 2500002. So the answer is 2500002.

Problem B. Gift

Input file: **standard input**
Output file: **standard output**
Time limit: 2.5 seconds
Memory limit: 256 megabytes

You want to give your friend a gift on his birthday. The gift is a box of n candies. You went to a candy shop and there are m flavors of candy. The i th flavor is defined by the i th letter in the alphabet. i.e. first flavor is defined by a , second flavor is defined by b , third flavor is defined by c , $\dots$ and so on.

Print all possible choices for candy box. Two candy box will be different if for any i , i th candy flavor in two boxes are different.

Print them in lexicographic order.

Input

Only line in the input contains two integers, n, m ($1 \leq n \leq 9, 1 \leq m \leq 6$)

Output

First line of the output should contain one integer k — number of possible choices.

Each of the next k lines should contain a string of length n denoting the choice. They should be in lexicographic order.

Examples

standard input	standard output
3 2	8 aaa aab aba abb baa bab bba bbb
1 1	1 a
1 2	2 a b