1090 - Trailing Zeroes (II)

Find the number of trailing zeroes for the following function:

$$^{n}C_{r} * p^{q}$$

where n, r, p, q are given. For example, if n = 10, r = 4, p = 1, then the number is 210 so, number of trailing zeroes is 1.

Input

Input starts with an integer $T \leq 10000$, denoting the number of test cases.

Each case contains four integers: n, r, p, q ($1 \le n$, r, p, $q \le 10^6$, $r \le n$).

Output

For each test case, print the case number and the number of trailing zeroes.

Sample Input	Output for Sample Input
2	Case 1: 1
10 4 1 1	Case 2: 6
100 5 40 5	