

Permutation generator

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[English version](#)

For each index of n element permutation print m subsequent permutations (in separate lines) in lexicographical order starting from the one pointed by index. Between outputs of subsequent tests there should be an empty line. Next permutation to the last one is the first one.

Input

t [number of tests ≤ 1000]

n index m [$2 \leq n \leq 100$ - number of elements in permutation, $0 \leq \text{index} < n!$ - index of the first permutation, $1 \leq m \leq 100$ - how many permutations to print]

Output

$p_1 p_2 \dots p_{(n-1)} p_n$ [permutations]
 $p_1 p_2 \dots p_n p_{(n-1)}$

$p_1 p_2 \dots p_{(n-1)} p_n$ [permutations]
 $p_1 p_2 \dots p_n p_{(n-1)}$

Example

Input:

```
12
2 1 1
3 3 3
4 16 3
4 5 9
2 1 1
2 1 1
3 5 1
5 91 7
2 1 1
5 100 7
3 5 1
2 1 1
```

Output:

```
2 1

2 3 1
3 1 2
3 2 1

3 4 1 2
3 4 2 1
4 1 2 3

1 4 3 2
2 1 3 4
2 1 4 3
```

2314
2341
2413
2431
3124
3142

21

21

321

45132
45213
45231
45312
45321
51234
51243

21

51423
51432
52134
52143
52314
52341
52413

321

21