

2915 PERMS

Count the number of permutations that have a specific number of inversions.

Given a permutation $a_1, a_2, a_3, \dots, a_n$ of the n integers $1, 2, 3, \dots, n$, an inversion is a pair (a_i, a_j) where $i < j$ and $a_i > a_j$. The number of inversions in a permutation gives an indication on how “unsorted” a permutation is. If we wish to analyze the average running time of a sorting algorithm, it is often useful to know how many permutations of n objects will have a certain number of inversions.

In this problem you are asked to compute the number of permutations of n values that have exactly k inversions.

For example, if $n = 3$, there are 6 permutations with the indicated inversions as follows:

123	0 inversions
132	1 inversion ($3 > 2$)
213	1 inversion ($2 > 1$)
231	2 inversions ($2 > 1, 3 > 1$)
312	2 inversions ($3 > 1, 3 > 2$)
321	3 inversions ($3 > 2, 3 > 1, 2 > 1$)

Therefore, for the permutations of 3 things:

- 1 of them has 0 inversions
- 2 of them have 1 inversion
- 2 of them have 2 inversions
- 1 of them has 3 inversions
- 0 of them have 4 inversions
- 0 of them have 5 inversions
- etc.

Input

The input consists one or more problems. The input for each problem is specified on a single line, giving the integer n ($1 \leq n \leq 15$) and a non-negative integer k ($1 \leq k \leq 200$).

The end of input is specified by a line with $n = k = 0$.

Output

For each problem, output the number of permutations of $\{1, \dots, n\}$ with exactly k inversions, on a line by itself.

Sample Input

```
3 0
3 1
3 2
3 3
4 2
4 10
13 23
18 80
0 0
```

Sample Output

```
1
2
2
1
5
0
46936280
184348859235088
```