2009 ALL WORK AND NO PLAY

A toy set contains blocks showing the numbers from 1 to 9. There are plenty of blocks showing each number and blocks showing the same number are otherwise indistinguishable. We can consider the number of different ways of arranging the blocks so that the displayed numbers add to a fixed sum.

For example, there are 8 different arrangements that sum to 4. In increasing numeric order they are:

```
   4
  13
  22
  31
 112
 121
 211
1111
```

Write a program that determines the nth arrangement in increasing numeric order. You should input a single line containing a pair of integers, s ($1 \leq s < 64$) followed by n ($1 \leq n < 2^{63}$). You will not be given an n that is greater than number of ways to arrange the blocks.

You should output the nth arrangement that sums to s.