Problem 6: The Circle

You have a circle, divided into sectors. You are given three positive numbers: n (n<=6), m (m<=20) and k (k<=20). n is the number of sectors. Choose integers to place in each sector. All integers have to be greater or equal to k. When the circle is filled you can use the integer in a single sector or add the integers in two or more adjacent sectors to make a new number. Using these new numbers you can create an unbroken sequence of all integers between m and i (m,m+1,m+2 ... i).

Your task is to choose integers for the sectors such that the largest number (i) in the sequence is as high as possible. Figure 1 below shows how to generate all numbers from 2 to 21 (for n=5, m=2, k=1). The ^-sign below the sectors shows which sectors to add together to make numbers in the sequence.

Input Data

The `INPUT.TXT` file contains three integers (n, m and k). Example:

```
5
2
1
```

Output Data

The file `OUTPUT.TXT` must contain:

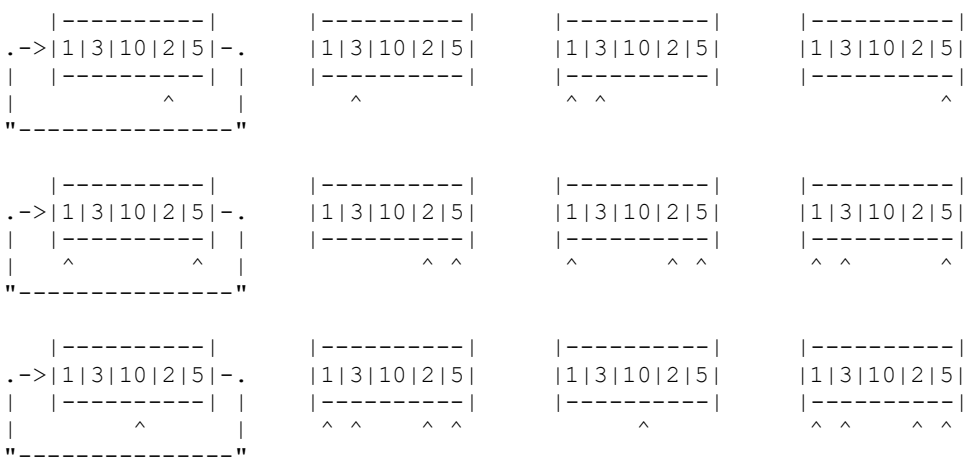
- The highest number (i) that can be generated with the list of numbers.
- All arrangements of numbers in a circle that produce a sequence from m to i. (One per line.) Each arrangement is a list of numbers starting with the smallest number (which is not necessarily unique).

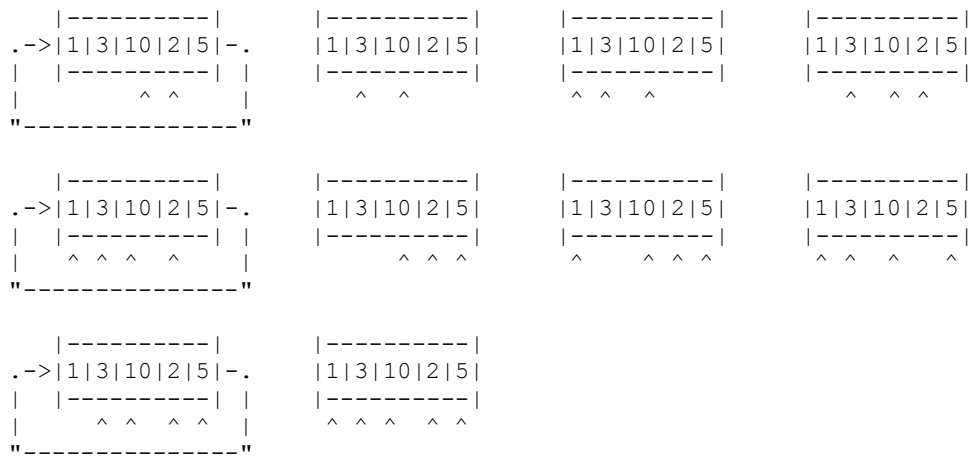
(2 10 3 1 5) is NOT a valid solution, since it does not start with the smallest number. (1 3 10 2 5) and (1 5 2 10 3) must both be included in the output. Note that (1 1 2 3), (1 3 2 1), (1 2 3 1) and (1 1 3 2) should all be output.

The output for the example above might be:

```
21
1 3 10 2 5
1 5 2 10 3
2 4 9 3 5
2 5 3 9 4
```

FIGURE 1 (all circles have been cut open as indicated by arrow):




1	3	10	2	5
1	3	10	2	5
1	3	10	2	5
1	3	10	2	5
1	3	10	2	5
1	3	10	2	5
1	3	10	2	5
1	3	10	2	5
1	3	10	2	5
1	3	10	2	5