

# Temptation Island

On Monday, the number of frosh were reduced in half. To further reduce the number of engineers to a manageable number, the following challenge was devised for the second day. Each of the students would have to take this challenge individually.

Each student would be placed at a vertex of perimeter fence of Waterloo (oh yeah, some background: to keep UofT's engineering Lady Godiva band out of Waterloo, a fence was erected surrounding the university. The fence just happens to be an N-gon). At some other vertex along the fence would be located a temptation so seductive that no Waterloo student could resist – an extra-credit assignment. The challenge of each student is to go from his starting vertex to the vertex with the prize. There are however 3 rules:

- a) The student can only travel from vertex to vertex (backwards or forwards) along the polygonal fence.
- b) The student has to make contact with exactly K vertices (the vertex he starts at doesn't count unless he returns to it). The K vertices need not be unique. The final vertex has to be the one with the prize.
- c) If the student cannot reach the prize and make contact with exactly K vertices, he fails the test and is kicked out of the university.

Of course, no Waterloo student is satisfied with only 1 solution to any problem. Therefore, inevitably, each student determines all ways that he/she can win. Note that there may be no solution to the problem (the astute student has figured out that this will result in a class size of 0 – this is entirely allowable as the variable used to quantify enrollment was incorrectly defined as a whole number instead of a natural number).

## Input

N K (N, K <= 50)

A B (A = the starting vertex number, B = destination vertex number)

-1 -1 terminates input

## Output

The total number of ways of reaching the destination from the starting point by following the above rules. The total number of ways will be less than  $2^{63} - 1$ . Output 0 if there are no solution.

## Example

**Input:**

8 5

1 4

-1 -1

**Output:**

6