Calendar (calendar)

Memory limit: 512 MB Time limit: 1.00 s

Handy Smurf created his newest invention: nanobot calendar. It obviously consists of nanobots showing current date. Every day in order to switch current date they have to perform a cyclic rotation by k places (so that nanobot that was initially at position i is now at position $(i + k) \bmod n$, nanobots are indexed from 0). However, nanobots can only understand one command: `reverse l r` which reverses positions of all nanobots at positions between l and r (so that nanobot that was initially at position l is now at r, the one that was at $l + 1$ is now at $r - 1$ and so on). Help Handy write an algorithm for updating the date with minimum number of commands issued.

Input

First and only line of input contains two integers n and k ($1 \leq n \leq 10^9$, $0 \leq k < n$), specifying the number of nanobots and number of places to rotate.

Output

First line of output should contain integer m – the number of `reverse` commands used. On each of the next m lines output two integers a and b ($0 \leq a \leq b < n$) which means that the next command is `reverse a b`.

Example

Input	Output
2 1	1 0 1