A game of digits **P69088_en**

Divuitè Concurs de Programació de la UPC - Final (2020-10-07)

Consider the following game: given two positive integers n and b, players A and B take turns to write digits in base b (from 0 to $b-1$), starting with player A. The digits are written from left to right. For instance, if A writes a 5, B may write a 1 to form a 51, but not a 15. (And then A would write another digit, and then B, and so on.) If at any point during the game a multiple of n (including 0) is written (in base b), then B wins and the game finishes.

If A can indefinitely prevent B from winning, both players will eventually get bored and player A will be declared the winner. Otherwise, they will keep playing until B wins. Can you determine who will be the winner? Assume that A and B play perfectly.

Input

Input consists of several cases, each with n and b. Assume $1 \leq n \leq 10^{18}$ and $2 \leq b \leq 10^{18}$.

Output

For every case, print the name of the winner.

Sample input	Sample output
10 5 5 10 2 2 1000000000000000000 123456789012345	A B B A

Problem information

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