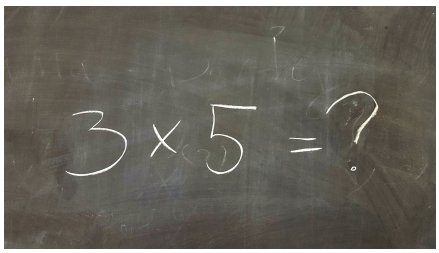
H Multiplying Digits

For every positive integer we may obtain a non-negative integer by multiplying its digits. This defines a function f, e.g. $f(38) = 24$.

This function gets more interesting if we allow for other bases. In base 3, the number 80 is written as 2222, so: $f_3(80) = 16$.



Picture by Mees de Vries

We want you to solve the reverse problem: given a base B and a number N, what is the smallest positive integer X such that $f_B(X) = N$?

Input

The input consists of a single line containing two integers B and N, satisfying $2 < B \leq 10\,000$ and $0 < N < 2^{63}$.

Output

Output the smallest positive integer solution X of the equation $f_B(X) = N$. If no such X exists, output the word "`impossible`". The input is carefully chosen such that $X < 2^{63}$ holds (if X exists).

Sample Input 1	**Sample Output 1**
`10 24`	`38`

Sample Input 2	**Sample Output 2**
`10 11`	`impossible`

Sample Input 3	**Sample Output 3**
`9 216`	`546`

Sample Input 4	**Sample Output 4**
`10000 5810859769934419200`	`5989840988999909996`

This is not a blank page.