

A. XOR Equation

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Two **positive** integers a and b have a sum of s and a bitwise XOR of x . How many possible values are there for the ordered pair (a, b) ?

Input

The first line of the input contains two integers s and x ($2 \leq s \leq 10^{12}$, $0 \leq x \leq 10^{12}$), the sum and bitwise xor of the pair of positive integers, respectively.

Output

Print a single integer, the number of solutions to the given conditions. If no solutions exist, print 0.

Examples

input
9 5
output
4

input
3 3
output
2

input
5 2
output
0

Note

In the first sample, we have the following solutions: $(2, 7)$, $(3, 6)$, $(6, 3)$, $(7, 2)$.

In the second sample, the only solutions are $(1, 2)$ and $(2, 1)$.