E. Little Girl and Maximum XOR

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

A little girl loves problems on bitwise operations very much. Here's one of them.

You are given two integers l and r. Let's consider the values of $a \oplus b$ for all pairs of integers a and b $(l \le a \le b \le r)$. Your task is to find the maximum value among all considered ones.

Expression $x \oplus y$ means applying bitwise excluding or operation to integers x and y. The given operation exists in all modern programming languages, for example, in languages C++ and $Java$ it is represented as "^", in $Pascal$ — as "`xor`".

Input

The single line contains space-separated integers l and r $(1 \le l \le r \le 10^{18})$.

Please, do not use the `%lld` specifier to read or write 64-bit integers in C++. It is preferred to use the `cin`, `cout` streams or the `%I64d` specifier.

Output

In a single line print a single integer — the maximum value of $a \oplus b$ for all pairs of integers a, b $(l \le a \le b \le r)$.

Examples

input	Copy
1 2	
output	**Copy**
3	

input	Copy
8 16	
output	**Copy**
31	

input	Copy
1 1	
output	**Copy**
0	

Topic Stream Mashup: Bitwise Operations

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
268684270	Jul/04/2024 00:59	Accepted
268684059	Jul/04/2024 00:56	Accepted

→ Contest materials

- Topic tutorial video (en)