L. Little Girl and Maximum XOR

time limit per test: 1 second

memory limit per test: 256 megabytes

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	

ICPC Assiut University Training - Juniors Phase 1 Sheets-2022

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→ Group Contests

- Juniors Phase 1 Practice #5 (Bitmask, Bitset, Bits)
- Juniors Phase 1 Practice #4 (Binary search , Two pointers)
- Juniors Phase 1 Practice #3 (STL 2)
- Juniors Phase 1 Practice #2 (STL 1)
- Juniors Phase 1 Practice #1 (Prefix sum , Frequency Array)

Juniors Phase 1 Practice #5 (Bitmask, Bitset, Bits)

Finished

Practice

→ About Time Scaling

This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the link.

→ 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
231864815	Nov/08/2023 01:33	Accepted
231864631	Nov/08/2023 01:28	Accepted
231861113	Nov/08/2023 00:16	Accepted