

2429. Minimize XOR

Description

Given two positive integers `num1` and `num2`, find the positive integer `x` such that:

- `x` has the same number of set bits as `num2`, and
- The value `x XOR num1` is **minimal**.

Note that `XOR` is the bitwise XOR operation.

Return *the integer* `x`. The test cases are generated such that `x` is **uniquely determined**.

The number of **set bits** of an integer is the number of `1`'s in its binary representation.

Example 1:

Input: `num1 = 3, num2 = 5`

Output: `3`

Explanation:

The binary representations of `num1` and `num2` are `0011` and `0101`, respectively.

The integer `3` has the same number of set bits as `num2`, and the value `3 XOR 3 = 0` is minimal.

Example 2:

Input: `num1 = 1, num2 = 12`

Output: `3`

Explanation:

The binary representations of `num1` and `num2` are `0001` and `1100`, respectively.

The integer `3` has the same number of set bits as `num2`, and the value `3 XOR 1 = 2` is minimal.

Constraints:

- $1 \leq \text{num1}, \text{num2} \leq 10^9$

