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Maximizing XOR 🔖

👤 **by zxqfd555**

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Given two integers, l and r, find the maximal value of a xor b, written $a \oplus b$, where a and b satisfy the following condition:

$$l \le a \le b \le r$$

Input Format

The first line contains the integer l.
The second line contains the integer r.

Constraints

$$1 \le l \le r \le 10^3$$

Output Format

Return the maximal value of the xor operations for all permutations of the integers from l to r, inclusive.

Sample Input 0

```
10
15
```

Sample Output 0

```
7
```

Explanation 0

The input tells us that $l = 10$ and $r = 15$. All the pairs which comply to above condition are the following:
$10 \oplus 10 = 0$
$10 \oplus 11 = 1$
$10 \oplus 12 = 6$
$10 \oplus 13 = 7$
$10 \oplus 14 = 4$
$10 \oplus 15 = 5$
$11 \oplus 11 = 0$
$11 \oplus 12 = 7$
$11 \oplus 13 = 6$
$11 \oplus 14 = 5$
$11 \oplus 15 = 4$
$12 \oplus 12 = 0$
$12 \oplus 13 = 1$
$12 \oplus 14 = 2$
$12 \oplus 15 = 3$
$13 \oplus 13 = 0$
$13 \oplus 14 = 3$
$13 \oplus 15 = 2$
$14 \oplus 14 = 0$
$14 \oplus 15 = 1$

$15 \oplus 15 = 0$

Here two pairs *(10, 13)* and *(11, 12)* have maximum xor value *7*, and this is the answer.

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Resources

Bitwise XOR

Finding Max Min

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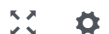
| Current Buffer (saved locally, editable) ⑂ 🕘 | C++14 ⌄ | ⤢ ⚙ |

```cpp
1 ▾ #include <cmath>
2   #include <cstdio>
3   #include <vector>
4   #include <iostream>
5   #include <algorithm>
6   using namespace std;
7
8
9 ▾ int main() {
10 ▾     /* Enter your code here. Read input from STDIN. Print output to STDOUT */
11      return 0;
12  }
13
```

Line: 1 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code