

# Playing With Bits

Maaz and Aradhya are quite brilliant students of Mathematics and Programming respectively. One day, their Mathematics Professor Mr. K.P. Singh asked them to solve a Mathematics problem.

**Given two number A and B, find the minimum number of bits required to convert binary representation of A into binary representation of B.**

Maaz promised Mr. K.P. Singh that he will be the first one to solve the problem but Aradhya decided to do it before him. He turns to you for help. Will you be able to help him?

## Input

Input consists of **t** (number of test cases), then **t** lines follows, each containing two integers **a and b** ( $1 \leq a, b \leq 2^{31}$ )

## Output

A single line containing the minimum number of bits required to convert binary representation of A into binary representation of B.

## Example

**Input:**

2

14 31

56 68

**Output:**

2

5

**Time Limit is kept very strict. Any naive algorithm will never be accepted.**