

# Tree Summit Solution

The problem asks for the maximum value where both numbers can meet. The only operation we can perform is to divide the current number by 2.

Thus, we need to repeatedly divide the numbers until both of them become equal to each other. If one of them (say  $a$ ) is larger than the other (say  $b$ ), we keep dividing  $a$  by 2 until  $a \leq b$ . If at any point  $a$  becomes smaller than  $b$ , we switch and start dividing  $b$  instead, continuing this process until  $a = b$ .

$$\{ a = \frac{a}{2}, \quad \text{if } a > b \text{ and } b = \frac{b}{2}, \quad \text{if } b > a$$

Time Complexity:  $O(\log_2 a + \log_2 b)$  per test case.