

## 7733 Guess the number

AOA just met a problem when he attended an interview, as shown below:

$A$  and  $B$  two people play guessing games.  $A$  thinks of a number  $x$  between  $a$  and  $b$  randomly in his mind, and he lets  $B$  to guess this number.  $A$  will say too small if  $B$ 's guess is less than  $x$  and  $A$  will say yes if  $B$ 's guess is just  $x$ . Once  $B$ 's guess is bigger than  $x$ ,  $A$  won't speak any more. After that,  $A$  just nods his head if  $B$ 's guess is just  $x$ , otherwise shakes his head. The problem is that how many kinds of best guess strategies to make the least number of guesses in the worst situation?

### Input

Input contains multiple sets of test data and each of them occupies one line, including two integers,  $a$  and  $b$  ( $1 \leq a \leq b \leq 5 * 10^6$ ), on behalf of range of the number.

Input to the end of the file.

### Output

For each set of input, output one line containing two integers. The first one represents the least number of times of guessing in the worst situation. The second one represents the number of best guess method *modulo* 100000073.

### Hint

- $B$  can guess the number in  $A$ 's mind up to 3 times in the worst case.
- The first method,  $B$  can guess in the order of (2,4,5)
- The second method,  $B$  can guess in the order of (3,4,5)
- The third method,  $B$  can guess in the order of (3,5)
- Each method is up to three times.

### Sample Input

```
1 5
```

### Sample Output

```
3 3
```