Minimum Limit of Balls in a Bag

You are given an integer array nums where the i^{th} bag contains nums[i] balls. You are also given an integer maxOperations.

You can perform the following operation at most maxOperations times:

- Take any bag of balls and divide it into two new bags with a **positive** number of balls.
    - For example, a bag of 5 balls can become two new bags of 1 and 4 balls, or two new bags of 2 and 3 balls.

Your penalty is the **maximum** number of balls in a bag. You want to **minimize** your penalty after the operations.

Return *the minimum possible penalty after performing the operations*.

Example 1:

Input: nums = [9], maxOperations = 2

Output: 3

Explanation:

- Divide the bag with 9 balls into two bags of sizes 6 and 3. [**9**] -> [6,3].

- Divide the bag with 6 balls into two bags of sizes 3 and 3. [**6**,3] -> [3,3,3].

The bag with the most number of balls has 3 balls, so your penalty is 3 and you should return 3.

Example 2:

Input: nums = [2,4,8,2], maxOperations = 4

Output: 2

Explanation:

- Divide the bag with 8 balls into two bags of sizes 4 and 4. [2,4,**8**,2] -> [2,4,4,4,2].

- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2,**4**,4,4,2] -> [2,2,2,4,4,2].

- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2,2,2,**4**,4,2] -> [2,2,2,2,2,4,2].

- Divide the bag with 4 balls into two bags of sizes 2 and 2. [2,2,2,2,2,**4**,2] -> [2,2,2,2,2,2,2,2].

The bag with the most number of balls has 2 balls, so your penalty is 2, and you should return 2.

Constraints:

- $1 <= nums.length <= 10^5$
- $1 <= maxOperations, nums[i] <= 10^9$