

1891. Cutting Ribbons Premium

Solved ●

Medium  Topics  Companies  Hint

You are given an integer array `ribbons`, where `ribbons[i]` represents the length of the i^{th} ribbon, and an integer `k`. You may cut any of the ribbons into any number of segments of **positive integer** lengths, or perform no cuts at all.

- For example, if you have a ribbon of length `4`, you can:
 - Keep the ribbon of length `4`,
 - Cut it into one ribbon of length `3` and one ribbon of length `1`,
 - Cut it into two ribbons of length `2`,
 - Cut it into one ribbon of length `2` and two ribbons of length `1`, or
 - Cut it into four ribbons of length `1`.

Your task is to determine the **maximum** length of ribbon, `x`, that allows you to cut *exactly* `k` ribbons, each of length `x`. You can discard any leftover ribbon from the cuts. If it is **impossible** to cut `k` ribbons of the same length, return 0.

Example 1:

Input: `ribbons = [9,7,5]`, `k = 3`**Output:** 5**Explanation:**

- Cut the first ribbon to two ribbons, one of length 5 and one of length 4.
- Cut the second ribbon to two ribbons, one of length 5 and one of length 2.
- Keep the third ribbon as it is.

Now you have 3 ribbons of length 5.

Example 2:

Input: `ribbons = [7,5,9]`, `k = 4`**Output:** 4**Explanation:**

- Cut the first ribbon to two ribbons, one of length 4 and one of length 3.
- Cut the second ribbon to two ribbons, one of length 4 and one of length 1.
- Cut the third ribbon to three ribbons, two of length 4 and one of length 1.

Now you have 4 ribbons of length 4.

Example 3:

Input: `ribbons = [5,7,9]`, `k = 22`**Output:** 0**Explanation:** You cannot obtain `k` ribbons of the same positive integer length.

Constraints:

- $1 \leq \text{ribbons.length} \leq 10^5$
- $1 \leq \text{ribbons}[i] \leq 10^5$
- $1 \leq k \leq 10^9$

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