

# 2028. Find Missing Observations

## Description

You have observations of `n + m` **6-sided** dice rolls with each face numbered from `1` to `6`. `n` of the observations went missing, and you only have the observations of `m` rolls. Fortunately, you have also calculated the **average value** of the `n + m` rolls.

You are given an integer array `rolls` of length `m` where `rolls[i]` is the value of the `ith` observation. You are also given the two integers `mean` and `n`.

Return *an array of length `n` containing the missing observations such that the **average value** of the `n + m` rolls is **exactly** `mean`*. If there are multiple valid answers, return *any of them*. If no such array exists, return *an empty array*.

The **average value** of a set of `k` numbers is the sum of the numbers divided by `k`.

Note that `mean` is an integer, so the sum of the `n + m` rolls should be divisible by `n + m`.

### Example 1:

```
Input: rolls = [3,2,4,3], mean = 4, n = 2
Output: [6,6]
Explanation: The mean of all n + m rolls is (3 + 2 + 4 + 3 + 6 + 6) / 6 = 4.
```

### Example 2:

```
Input: rolls = [1,5,6], mean = 3, n = 4
Output: [2,3,2,2]
Explanation: The mean of all n + m rolls is (1 + 5 + 6 + 2 + 3 + 2 + 2) / 7 = 3.
```

### Example 3:

```
Input: rolls = [1,2,3,4], mean = 6, n = 4
Output: []
Explanation: It is impossible for the mean to be 6 no matter what the 4 missing rolls are.
```

### Constraints:

- `m == rolls.length`
- `1 <= n, m <= 105`
- `1 <= rolls[i], mean <= 6`

