Count Triplets

HackerRank

You are given an array and you need to find number of tripets of indices (i, j, k) such that the elements at those indices are in geometric progression for a given common ratio r and $i < j < k$.

Example

$arr = [1, 4, 16, 64]$ $r = 4$

There are $[1, 4, 16]$ and $[4, 16, 64]$ at indices $(0, 1, 2)$ and $(1, 2, 3)$. Return 2.

Function Description

Complete the *countTriplets* function in the editor below.

countTriplets has the following parameter(s):

- *int arr[n]:* an array of integers
- *int r*: the common ratio

Returns

- *int:* the number of triplets

Input Format

The first line contains two space-separated integers n and r, the size of arr and the common ratio.
The next line contains n space-seperated integers $arr[i]$.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq r \leq 10^9$
- $1 \leq arr[i] \leq 10^9$

Sample Input 0

```
4 2
1 2 2 4
```

Sample Output 0

```
2
```

Explanation 0

There are 2 triplets in satisfying our criteria, whose indices are $(0, 1, 3)$ and $(0, 2, 3)$

Sample Input 1

```
6 3
1 3 9 9 27 81
```

Sample Output 1

```
6
```

Explanation 1

The triplets satisfying are index $(0, 1, 2)$, $(0, 1, 3)$, $(1, 2, 4)$, $(1, 3, 4)$, $(2, 4, 5)$ and $(3, 4, 5)$.

Sample Input 2

```
5 5
1 5 5 25 125
```

Sample Output 2

```
4
```

Explanation 2

The triplets satisfying are index $(0, 1, 3)$, $(0, 2, 3)$, $(1, 3, 4)$, $(2, 3, 4)$.