Count Triplets ★

Problem Submissions Leaderboard Editorial

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 $(0, 1, 3)$, $(0, 2, 3)$, $(1, 3, 4)$, $(2, 3, 4)$.

Change Theme JavaScript (Node.js)

```
24
25  // Complete the countTriplets function below.
26  function countTriplets(arr, r) {
27  let count = 0;
28  const map = {};
29  const doubles = {};
30  for (let i = arr.length - 1; i >= 0; i--) {
31      let x = arr[i];
32      let rx = x * r;
33      let r2x = rx * r;
34      let pairWeWant = [rx, r2x];
35      if (doubles[pairWeWant] !== undefined) {
36          count = count + doubles[pairWeWant]
37      }
38      let doub = [x, rx];
39      if (doubles[doub] == undefined) doubles[doub] = 0;
40      doubles[doub] = doubles[doub] + ((map[rx] == undefined) ? 0 : map[rx]);
41  // Add x to map
42      (map[x] == undefined) ? map[x] = 1: map[x]++;
43      }
44      return count;
45  }
46
47  function main() {
```

Line: 44 Col: 5

Upload Code as File Test against custom input Run Code Submit Code

Congratulations!

You have passed the sample test cases. Click the submit button to run your code against all the test cases.

Sample Test case 0

Sample Test case 1

Sample Test case 2

Input (stdin) Download

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

Your Output (stdout)

```
2
```

Expected Output Download

Expected Output

Download

```
1
2
```