

5508. Number of Ways Where Square of Number Is Equal to Product of Two Numbers

test-205/problems/number-of-ways-where-square-of-number-is-equal-to-product-of-two-numbers/submissions/

test-205/)

Given two arrays of integers `nums1` and `nums2`, return the number of triplets formed (type 1 and type 2) under the following rules:

- Type 1: Triplet (i, j, k) if $\text{nums1}[i]^2 == \text{nums2}[j] * \text{nums2}[k]$ where $0 \leq i < \text{nums1.length}$ and $0 \leq j < k < \text{nums2.length}$.
- Type 2: Triplet (i, j, k) if $\text{nums2}[i]^2 == \text{nums1}[j] * \text{nums1}[k]$ where $0 \leq i < \text{nums2.length}$ and $0 \leq j < k < \text{nums1.length}$.

User Accepted:	0
User Tried:	0
Total Accepted:	0
Total Submissions:	0
Difficulty:	Medium

Example 1:

Input: `nums1 = [7,4], nums2 = [5,2,8,9]`

Output: 1

Explanation: Type 1: (1,1,2), $\text{nums1}[1]^2 = \text{nums2}[1] * \text{nums2}[2]$. ($4^2 = 2 * 8$).

Example 2:

Input: `nums1 = [1,1], nums2 = [1,1,1]`

Output: 9

Explanation: All Triplets are valid, because $1^2 = 1 * 1$.

Type 1: (0,0,1), (0,0,2), (0,1,2), (1,0,1), (1,0,2), (1,1,2). $\text{nums1}[i]^2 = \text{nums2}[j] * \text{nums2}[k]$.

Type 2: (0,0,1), (1,0,1), (2,0,1). $\text{nums2}[i]^2 = \text{nums1}[j] * \text{nums1}[k]$.

Example 3:

Input: `nums1 = [7,7,8,3], nums2 = [1,2,9,7]`

Output: 2

Explanation: There are 2 valid triplets.

Type 1: (3,0,2). $\text{nums1}[3]^2 = \text{nums2}[0] * \text{nums2}[2]$.

Type 2: (3,0,1). $\text{nums2}[3]^2 = \text{nums1}[0] * \text{nums1}[1]$.

Example 4:

Input: `nums1 = [4,7,9,11,23], nums2 = [3,5,1024,12,18]`

Output: 0

Explanation: There are no valid triplets.

Constraints:

- $1 \leq \text{nums1.length}, \text{nums2.length} \leq 1000$
- $1 \leq \text{nums1}[i], \text{nums2}[i] \leq 10^5$

JavaScript



```
1 /**
2  * @param {number[]} nums1
3  * @param {number[]} nums2
4  * @return {number}
5  */
6 const numTriplets = (nums1, nums2) => {
7     let n1 = nums1.length;
8     let n2 = nums2.length;
9     let cnt = 0;
10    let tmp1 = nums1.map(x => x ** 2);
11    let tmp2 = nums2.map(x => x ** 2);
12    for (let i = 0; i < n1; i++) {
13        let sq = tmp1[i];
14        for (let j = 0; j < n2; j++) {
15            for (let k = j + 1; k < n2; k++) {
16                let v = nums2[j] * nums2[k];
17                if (v == sq) {
18                    cnt++;
19                }
20            }
21        }
22    }
23    for (let i = 0; i < n2; i++) {
24        let sq = tmp2[i];
25        for (let j = 0; j < n1; j++) {
26            for (let k = j + 1; k < n1; k++) {
27                let v = nums1[j] * nums1[k];
28                if (v == sq) {
29                    cnt++;
30                }
31            }
32        }
33    }
34    return cnt;
35 };
```

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