Logo

STUDENT REPORT

DETAILS

Name

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Roll Number

KUB23CSE130

EXPERIMENT

Title

NUMBER OF COMBINATIONS LEADING TO A PRODUCT

Description

Problem Statement:

You are given an array arr and a product m. Your task is to find the number of possible unique triplets whose product of elements is m.

Input Format:

- The first line contains the integer, n
- The second line contains space seperated integers of the array, arr
- The third line contains the product m.

The input will be read from the STDIN by the candidate

Output Format:

The output consists of a single integer, i.e. the count of unique triplets having product m.

The output will be matched to the candidate's output printed on the STDOUT

Example:

Input:

7

5 3 20 10 1 4 2

60

Output:

3

Explanation:

Product m:60

Possible triplets for product m: (5,4,3),(20,3,1), (10,3,2)

The count of unique triplets is 3.

Source Code:

```
def count_triplets(arr, n, m):
    unique_triplets = set()
    arr = sorted(arr)  # Sort the array to make it easier to find triplets

    for i in range(n):
        target = m / arr[i]  # Find the target product for the other two elements
        left, right = i + 1, n - 1  # Initialize two pointers

        while left < right:
            product = arr[left] * arr[right]
            if product == target:
                triplet = tuple(sorted([arr[i], arr[left], arr[right]]))
                unique_triplets.add(triplet)
                left += 1
                right -= 1
            elif product < target:
                left += 1  # We need a larger product
            else:
                right -= 1  # We need a smaller product

    return len(unique_triplets)

# Input Reading
n = int(input())
arr = list(map(int, input().split()))
m = int(input())

result = count_triplets(arr, n, m)
print(result)
```

RESULT

6 / 6 Test Cases Passed | 100 %