Logo

STUDENT REPORT

DETAILS

Name

UTTARESHA GOUDA G

Roll Number

TEMPBTech-ECE033

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_unique_triplets(arr, m):
    arr = sorted(set(arr))  # Remove duplicates and sort the array
    count = 0
    n = len(arr)

    for i in range(n - 2):
        a = arr[i]
        left = i + 1
        right = n - 1

        while left < right:
            product = a * arr[left] * arr[right]
            if product == m:
                count += 1
                left += 1
                right -= 1

                # Move left pointer to the right to avoid duplicates
                while left < right and arr[left] == arr[left - 1]:
                    left += 1

                # Move right pointer to the left to avoid duplicates
                while left < right and arr[right] == arr[right + 1]:
                    right -= 1

            elif product < m:
                left += 1
            else:
                right -= 1

    return count

# Reading input
import sys
input = sys.stdin.read
data = input().splitlines()

n = int(data[0])  # Size of the array
arr = list(map(int, data[1].split()))  # The array
m = int(data[2])  # The product to match

# Calculating the count of unique triplets
result = count_unique_triplets(arr, m)
print(result)
```

RESULT

6 / 6 Test Cases Passed | 100 %