Logo

STUDENT REPORT

DETAILS

Name

H ANUSHA

Roll Number

KUB23ECE004

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):
    n = len(arr)
    triplets = set()

    # Sort the array to facilitate the two-pointer technique
    arr.sort()

    for i in range(n):
        for j in range(i + 1, n):
            # Calculate the required third element
            required = m // (arr[i] * arr[j])
            # Check for the product condition
            if m % (arr[i] * arr[j]) == 0:
                # Check if the required element exists in the array
                if required in arr[j + 1:]:  # Only look for elements after j to avoid duplicates
                    triplet = tuple(sorted((arr[i], arr[j], required)))
                    triplets.add(triplet)

    return len(triplets)

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

n = int(data[0].strip())
arr = list(map(int, data[1].strip().split()))
m = int(data[2].strip())

# Get the count of unique triplets
output = count_unique_triplets(arr, m)
print(output)
```

RESULT

6 / 6 Test Cases Passed | 100 %