



# STUDENT REPORT

## DETAILS

Name

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Roll Number

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## EXPERIMENT

Title

### SUM OF NUMBERS AT PRIME FACTORS

Description

Prime factors of a positive integer are the prime numbers that divide that integer exactly.

Given an array arr of n integers and a positive integer num.

Let's suppose prime factorization of num is:  $p^a \times q^b \times r^c \times \dots \times z^f$ , where p,q,r...z are prime numbers.

Sum of numbers in array arr at indices of prime factors of number num is:  $a \times arr[p] + b \times arr[q] + c \times arr[r] + \dots + f \times arr[z]$ .

You are given an array arr of size n and a positive integer num. You are required to calculate the sum of numbers in arr as mentioned above, and print the same.

Note:

- If arr is empty, print -1.
- If prime factor of num not found as indices, print 0.

### Input Format:

The input consists of three lines:

- The first line contains an integer, i.e. n.
- The second line contains an array arr of length of n.
- The third line contains an integer num

The input will be read from the STDIN by the candidates.

Output Format:

Print the sum that was mentioned in the problem statement.

Example:

Input:

6  
  
11 21 32 45 1 23  
  
6

Output:

77

Explanation:

$$6=2^1 \times 3^1$$

$$\text{sum}=1*\text{arr}[2]+1*\text{arr}[3]=1*32+1*45=77$$

**Source Code:**

```
import math
def isprime(n):
    if n <= 1:
        return False
    for i in range(2, int(math.sqrt(n)) + 1):
        if n % i == 0:
            return False
    return True
N = int(input())
if N == 0:
    print(-1)
    exit()
A = list(map(int, input().split().split()))[:N]
P = int(input())
numsp = {}
for i in range (2, P + 1):
    while isprime(i) and P % i == 0:
        if i in numsp:
            numsp[i] += 1
        else:
            numsp[i] = 1
        P //= i
answer = 0
for key,value in numsp.items():
    if key < N:
        answer += value * A[key]
    else:
        answer = 0
        break
print(answer)
```

**RESULT**

1 / 5 Test Cases Passed | 20 %