Logo

# STUDENT REPORT

## DETAILS

**Name**

P SANIYA

**Roll Number**

3BR23EC118

## 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: $p^a \times q^b \times r^c \times .... \times z^f$ ,where p,q,r...z are prime numbers.

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

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

sum=1*arr[2]+1*arr[3]=1*32+1*45=77

**Source Code:**

```
def prime_factors(n):
    i = 2
    factors = []
    while i * i <= n:
        if n % i:
            i += 1
        else:
            n //= i
            factors.append(i)
    if n > 1:
        factors.append(n)
    return factors

n = int(input())
arr = list(map(int,input().split()))
num = int(input())

if n == 0:
    print(-1)
    exit()

factors = prime_factors(num)

total_sum = 0
for factor in factors:
    if factor < n:
        total_sum += arr[factor]
    else:
        print(0)
        exit()

print(total_sum)
```

**RESULT**

5 / 5 Test Cases Passed | 100 %