



# STUDENT REPORT

## DETAILS

### Name

RACHANNA GOUD GARI RAJESH

### Roll Number

TEMPBTech-ECE025

## 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  $p, q, r, \dots, z$  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):
    for i in range(2,int(math.sqrt(n))):
        if n%i==0:
            return False
    return True
N=int(input())
A=list(map(int,input().strip().split()))[:N]
P=int(input())
numsP=dict()
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=P//i
answer=0
for key,value in numsP.items():
    if key
```

#### RESULT

5 / 5 Test Cases Passed | 100 %