



STUDENT REPORT

DETAILS

Name

U JEEVAN

Roll Number

3BR23EC172

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:

```
def prime_factors(n):
    factors = []
    while n%2==0:
        factors.append(2)
        n//=2
    for i in range(3,int(n**0.5)+1,2):
        while n % i==0:
            factors.append(i)
            n//=i
    if n>2:
        factors.append(n)
    return factors
def calculate_weighted_sum(arr,num):
    if not arr:
        return -1
    factors = prime_factors(num)
    total_sum=0
    found = False
    for factor in factors:
        if factor < len(arr):
            total_sum+=arr[factor]
            found = True
    return total_sum if found else 0
if __name__=="__main__":
    import sys
    n=int(sys.stdin.readline().strip())
    arr=list(map(int,sys.stdin.readline().strip().split()))
    num=int(sys.stdin.readline().strip())
    result=calculate_weighted_sum(arr,num)
    print(result)
```

RESULT

0 / 5 Test Cases Passed | 0 %