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Badge Progress (Details)

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Between Two Sets 🔖

H by zemen

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Consider two sets of positive integers, $A = \{a_0, a_1, \ldots, a_{n-1}\}$ and $B = \{b_0, b_1, \ldots, b_{m-1}\}$. We say that a positive integer, x, is *between* sets A and B if the following conditions are satisfied:

1. All elements in A are factors of x.

2. x is a factor of all elements in B.

In other words, some x is *between* A and B if that value of x satisfies $x \bmod a_i = 0$ for every a_i in A and also satisfies $b_i \bmod x = 0$ for every b_i in B. For example, if $A = \{2, 6\}$ and $B = \{12\}$, then our possible x values are 6 and 12.

Given A and B, find and print the number of integers (i.e., possible x's) that are *between* the two sets.

Input Format

The first line contains two space-separated integers describing the respective values of n (the number of elements in set A) and m (the number of elements in set B).
The second line contains n distinct space-separated integers describing $a_0, a_1, \ldots, a_{n-1}$.
The third line contains m distinct space-separated integers describing $b_0, b_1, \ldots, b_{m-1}$.

Constraints

- $1 \le n, m \le 10$

- $1 \le a_i \le 100$

- $1 \le b_i \le 100$

Output Format

Print the number of integers that are considered to be *between* A and B.

Sample Input

```
2 3
2 4
16 32 96
```

Sample Output

```
3
```

Explanation

There are three x values *between* $A = \{2, 4\}$ and $B = \{16, 32, 96\}$:

- $x = 4$:
  - All the elements in A evenly divide $x = 4$.

- $x = 4$ evenly divides all the elements in B.

- $x = 8$:

  - All the elements in A evenly divide $x = 8$.

  - $x = 8$ evenly divides all the elements in B.

- $x = 16$:

  - All the elements in A evenly divide $x = 16$.

  - $x = 16$ evenly divides all the elements in B.

Thus, we print 3 as our answer.

f   y   in

Submissions:48406

Max Score:10
Difficulty: Easy

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More

Current Buffer (saved locally, editable)   ⑂ ⟳   Java 7   ⌄   ⤢   ⚙

```java
 1  import java.io.*;
 2  import java.util.*;
 3  import java.text.*;
 4  import java.math.*;
 5  import java.util.regex.*;
 6
 7  public class Solution {
 8
 9      static int getTotalX(int[] a, int[] b) {
10          // Complete this function
11      }
12
13      public static void main(String[] args) {
14          Scanner in = new Scanner(System.in);
15          int n = in.nextInt();
16          int m = in.nextInt();
17          int[] a = new int[n];
18          for(int a_i = 0; a_i < n; a_i++){
19              a[a_i] = in.nextInt();
20          }
21          int[] b = new int[m];
22          for(int b_i = 0; b_i < m; b_i++){
23              b[b_i] = in.nextInt();
24          }
25          int total = getTotalX(a, b);
26          System.out.println(total);
27          in.close();
28      }
29  }
30
```

Line: 1 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

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