

Watson gives Sherlock an array A of N elements and two arrays B and C , of M elements each. Then he asks Sherlock to perform the following program:

```
for i = 1 to M do
  for j = 1 to N do
    if j % B[i] == 0 then
      A[j] = A[j] * C[i]
    endif
  end do
end do
```

This code needs to be optimized. Can you help Sherlock and tell him the resulting array A ? You should print all the array elements modulo $(10^9 + 7)$.

Input Format

The first line contains two integer, N and M . The next line contains N integers, the elements of array A . The last two lines contain M integers each, the elements of array B and C , respectively.

Output Format

Print N space-separated integers, the elements of array A after performing the program modulo $(10^9 + 7)$.

Constraints

$$1 \leq N, M \leq 10^5$$

$$1 \leq B[i] \leq N$$

$$1 \leq A[i], C[i] \leq 10^5$$

Sample Input

```
4 3
1 2 3 4
1 2 3
13 29 71
```

Sample Output

```
13 754 2769 1508
```