Competitive Programming SS23

Submit until end of contest

Problem: perseq (1.0 second timelimit)

Note: This is a problem that is harder to solve than usual. Solve the other problems first before spending too much time on this one.

As you may know some fractions of integers $\frac{A}{B}$ result in a periodic decimal representation. For example $\frac{4}{7}$ results in $0.57\overline{142857}$, which means that the 142857 part is repeating itself. Note that we could also write $0.5714\overline{285714}$ or $0.571\overline{428571428571}$. As you see it is not trivial to check if two such sequences are equal. Therefore you are given the task to do this. You are given only the periodic part of two sequences and need to check if they are equal. Note that two sequences are considered to be equal if they can be made equal by repeating and cyclic shifting.

Input The first line contains two integers n, m $(1 \leq n, m \leq 5 \cdot 10^5)$, the length of the first and second sequence. The second line contains n integers a_i $(0 \leq a_i < 10)$, the first sequence. The third line contains m integers b_i $(0 \leq b_i < 10)$, the second sequence.

Output Print "`YES`" if the two sequences are equal and "`NO`" if they are not.

Sample input

```
6 3
1 5 6 1 5 6
6 1 5
```

Sample output

```
YES
```

Sample input

```
7 3
1 5 6 1 5 6 7
5 6 7
```

Sample output

```
NO
```