

Gas Stations

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Meow just got a motorcycle license but he's not very good at it, so he needs to practice. He decides to go in a **circular path in a clockwise direction** (left to right) around his city, starting from one of the gas stations but he's not sure if he has enough gas or not so you need to help him!

Meow's motorcycle has an unlimited gas tank, and it costs him a certain amount of gas to get from his current station to the next one. He starts off with an empty tank and will only fill it at his chosen starting station. Each station has a limited amount of gas that Meow can pump into his motorcycle. Stations are 0 indexed.

Which gas station should Meow start from?

Input

The first line contains an integer, n ($2 \leq n \leq 10^5$) – the total number of stations Meow wants to pass through on his circular practice route.

The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10000$) – the amount of gas added at each station i .

The third line contains n integers b_1, b_2, \dots, b_n ($1 \leq b_i \leq 10000$) – the cost of gas needed to get from this station to the next subsequent station.

Output

Print the index of Meow's starting station (0-based).

In the event that Meow can start from station 2 or 3, he should start from gas station 2. If Meow cannot start from any of the available stations, display -1.

Examples

| standard input | standard output |
|---------------------------------------|-----------------|
| 5 34 56 77 20 50 45 46 77 12 89 | -1 |
| 5 1 23 5 6 77 3 4 5 6 7 | 1 |