

Problem statement[Send feedback](#)

Ninja wants to meet his 'N' old friends standing in a row. All the friends along with Ninja are very happy because they are meeting after a long time. The happiness of each friend can be represented as a positive integer. Initially, Ninja has some happiness value 'K'. Ninja shakes hands with all of his 'N' friends standing in a row one by one. While shaking hands if the happiness value of Ninja matches with that of his friend, then the happiness value of Ninja becomes double. Ninja wants to calculate his happiness value after he shakes hands with all of his friends. For Example: For 'FRIENDS' = [3, 2, 1, 4]. And 'K' = 2, following are the results after each hand shake:

1. At index 0 the happiness value of his friend is 3 and the happiness value of Ninja is 2. Both are unequal so 'K' remains the same.
2. At index 1 the happiness value of his friend is 2 and the happiness value of Ninja is 2. Both are equal so 'K' becomes 4.
3. At index 2 the happiness value of his friend is 1 and the happiness value of Ninja is 4. Both are unequal so 'K' remains the same.
4. At index 3 the happiness value of his friend is 4 and the happiness value of Ninja is 4. Both are equal so 'K' becomes 8.

As Ninja is busy with his friends so he needs your help. Can you help Ninja to find his final happiness value after all the handshakes?

Detailed explanation (Input/output format, Notes, Images)**Constraints:**

```
1 <= T <= 100
1 <= N <= 10 ^ 4
1 <= K <= 10 ^ 3
1 <= FRIENDS[i] <= 10 ^ 6
```

Where 'FRIENDS[i]' denotes the happiness value of the friend at the 'i'th index, respectively.

Time Limit: 1 sec

Sample Input 1:

```
2
3 1
1 2 4
2 4
1 2
```

Sample Output 1:

```
8
4
```

Explanation of Sample Input 1:

For the first test case:

1. At index 0 the happiness value of his friend is 1 and the happiness value of Ninja is 1. Both are equal so 'K' becomes 2.
2. At index 1 the happiness value of his friend is 2 and the happiness value of Ninja is 2. Both are equal so 'K' becomes 4.
3. At index 2 the happiness value of his friend is 4 and the happiness value of Ninja

is 4. Both are equal so 'K' becomes 8.

For the second test case:

1. At index 0 the happiness value of his friend is 1 and the happiness value of Ninja is 4. Both are unequal so 'K' remains the same.
2. At index 1 the happiness value of his friend is 2 and the happiness value of Ninja is 4. Both are unequal so 'K' remains the same.

Sample Input 2:

```
2
2 5
5 5
3 8
2 4 8
```

Sample Output 2:

```
10
16
```

Explanation of Sample Input 2:

For the first test case:

1. At index 0 the happiness value of his friend is 5 and the happiness value of Ninja is 5. Both are equal so 'K' becomes 10.
2. At index 1 the happiness value of his friend is 5 and the happiness value of Ninja is 10. Both are unequal so 'K' remains the same.

For the second test case:

1. At index 0 the happiness value of his friend is 2 and the happiness value of Ninja is 8. Both are unequal so 'K' remains the same.
2. At index 1 the happiness value of his friend is 4 and the happiness value of Ninja is 8. Both are unequal so 'K' remains the same.
3. At index 2 the happiness value of his friend is 8 and the happiness value of Ninja is 8. Both are equal so 'K' becomes 16.