N-dimensional Sphere

**Description**

In an N-dimensional space, a sphere is defined as {(x1, x2 ... xN)| ∑(xi-Xi)^2 = R^2 (i=1,2,...,N) }. where (X1,X2…XN) is the center. You're given N + 1 points on an N-dimensional sphere and are asked to calculate the center of the sphere.

**Input**

The first line contains an integer T which is the number of test cases.

For each case there's one integer N on the first line.

Each of the N+1 following lines contains N integers x1, x2 ... xN describing the coordinate of a point on the N-dimensional sphere.

(0 <= T <= 10, 1 <= N <= 50, |xi| <= 10^17)

**Output**

For the kth case, first output a line contains “Case k:”, then output N integers on a line indicating the center of the N-dimensional sphere

(It's guaranteed that all coordinate components of the answer are integers and there is only one solution and |Xi| <= 10^17)

**Sample Input**

2

2

1 0

-1 0

0 1

3

2 2 3

0 2 3

1 3 3

1 2 4

**Sample Output**

Case 1:

0 0

Case 2:

1 2 3