Шаг2из8



2.3 Problem 2. Metabolite Annotation 8 из 8 шагов пройдено 0 из 1 000 баллов получено



**Metabolite Annotation**

Mass​ spectrometry is a technique that can be used to detect the presence of metabolites (biochemical compounds) in a sample. In this technique, a neutral metabolite is ionized by gaining or losing a charged fragment (adduct), and then the mass-to-charge ratio is measured for this ionized metabolite. Your task is to annotate mass-spectrometry results: fnd for a measured mass-to-charge ratio from which metabolite it could come from.

Formally, there is a database of ***M*** neutral metabolites with masses ***mi*** > 0 and a database of ***K*** potential adducts with masses ***ai*** (***ai*** can be both positive and negative). Then there are ***N*** measured signals ***si*** > 0. Each signal ***si*** corresponds to some metabolite ***mj*** (1 ≤ ***j*** ≤ ***M***) with an adduct ***ak*** (1 ≤ ***k*** ≤ ***K***) and some noise Δ (can be both positive and negative), that is ***si*** = ***mj*** + ***ak*** + Δ, with ***mj*** + ***ak*** > 0.

Your task is to fnd for each of ***N*** signals ***si*** the pair of metabolite ***mj*** and adduct ***ak***with the closest sum

***mj*** + ***ak***.

**Input format**

The frst line of the input contains one integer ***T*** (1 ≤ ***T*** ≤ 3) − the number of test cases.

Each test case is specifed by four lines. The frst line of each test case contains three integer numbers ***M***, ***K***, ***N***. The second line contains ***M*** numbers ***mi***− masses of metabolites (0 < ***mi*** ≤ 1000). Thethird line contains ***K*** numbers ***ai***− masses of adducts (−1000 ≤ ***ai*** ≤ 1000). The fourth line contains

* numbers ***si***− masses of signals (0 < ***si*** ≤ 1000). **All the masses are indicated with exactly six decimal places**.

**Output format**

For each signal ***si*** of each test case, print numbers ***j*** and ***k*** such that ***si*** = ***mj*** + ***ak*** + Δ, ***mj*** +

***ak*** > 0 and an absolute value of Δ is smallest possible. If there are multiple numbers ***j*** and ***k*** with same absolute value of Δ for some signal, you can print any of them.

**Sample input**



**3**

**2 2 5**

**1.000002 0.000002**

**0.500000 -0.500000**

**0.500001 0.500002 0.500003 1.000000 0.000001**

**2 2 5**

**1.000002 0.000001**

**0.500000 -0.500000**

**0.500001 0.500002 0.500003 1.000000 0.000001**

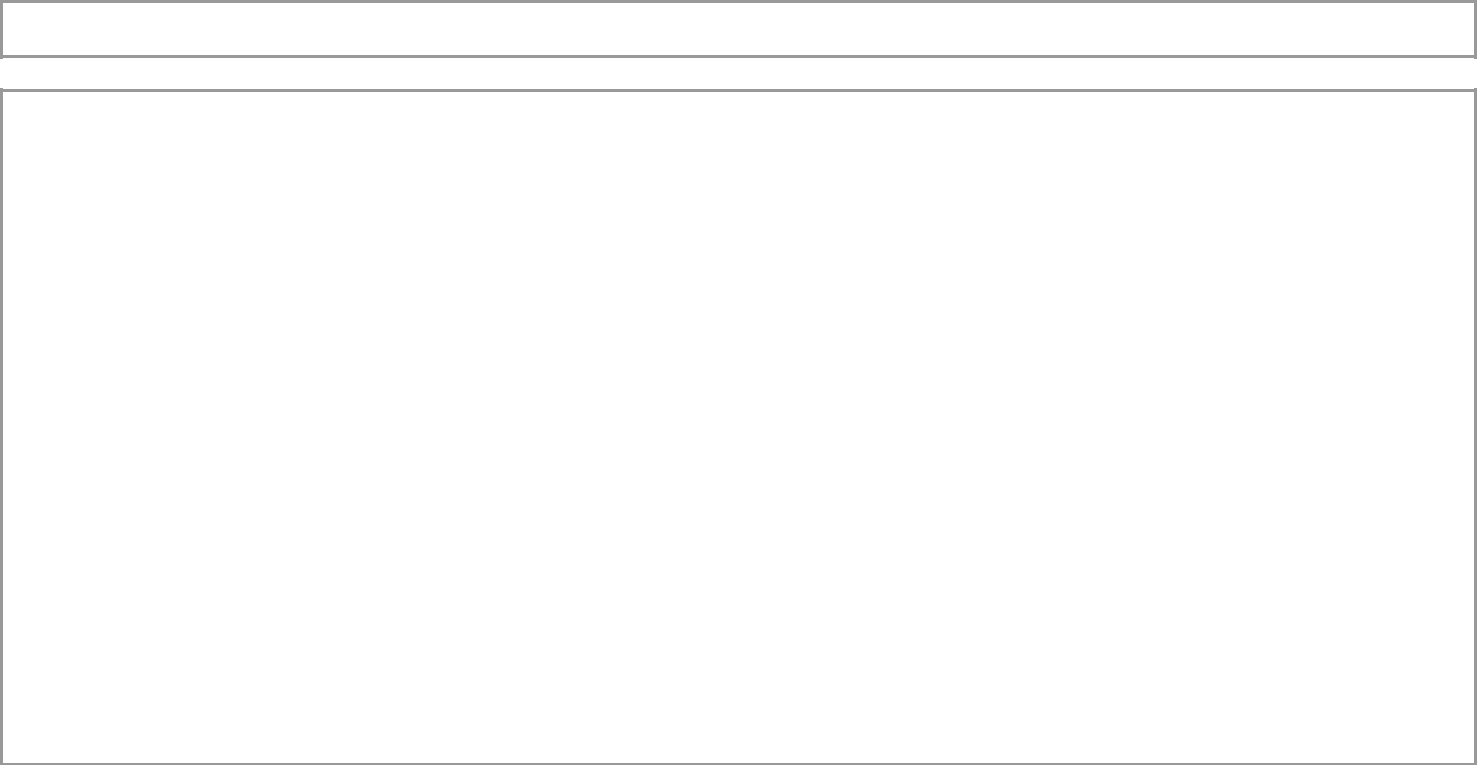
**5 4 7**

**0.000001 0.000002 0.000003 0.000004 0.000005**

**0.000002 0.000010 0.000001 -0.000001**

**0.000001 0.000002 0.000100 0.000005 0.000020 0.000010 0.000003**

**Sample output**



* **2**
* **2**
* **2**
* **2**
* **2**

**2 1**

* **2**
* **2**
* **2**

**2 1**

**2 4**

* **3**

**5 2**

**3 1**

**5 2**

* **2**
* **1**

