Alex's New Year's resolution for 2015 is to eat healthier foods. He's done some research and has found out that calories come from three main sources, called macronutrients: protein, carbohydrates, and fat. Alex wants to get the right balance of protein, carbohydrates, and fat to have a balanced diet. For each available food, Alex can only choose to eat it or not eat it. He can't eat a certain food more than once, and he can't eat a fractional amount of a food.

**Input**

Input beings with an integer **T**, the number of test cases. For each test case, the first line consists of three space-separated integers:**GP**, **GC**, and **GF**, which represent the amount of protein, carbohydrates, and fat that Alex wants to eat. The next line has the number of foods for that test case, an integer **N**. The next **N** lines each consist of three space-separated integers: **P**, **C**, and **F**, which represent the amount of protein, carbohydrates, and fat in that food, respectively.

**Output**

For each test case *i*, print a line containing "Case #*i*: " followed by either "yes" if it is possible for Alex to eat the exact amount of each macronutrient, or "no" if it is not possible.

**Constraints**

1 ≤ **T** ≤ 20   
1 ≤ **N** ≤ 20   
10 ≤ **GP**, **GC**, **GF** ≤ 1000   
10 ≤ **P**, **C**, **F** ≤ 1000

Example input · [Download](https://www.facebook.com/ajax/hackercup/example?pid=1036037553088752&type=input)

Example output · [Download](https://www.facebook.com/ajax/hackercup/example?pid=1036037553088752&type=output)

5

100 100 100

1

100 100 100

100 100 100

3

10 10 40

10 30 10

10 60 50

100 100 100

5

40 70 30

30 10 40

20 20 50

10 50 90

40 10 20

292 264 512

20

909 302 261

705 597 823

291 51 126

28 697 57

593 31 826

311 256 57

292 14 47

29 730 716

12 529 146

768 16 439

37 472 15

350 192 34

163 468 238

69 173 10

203 72 690

424 875 213

223 593 292

151 46 10

88 90 16

773 653 711

991 827 352

20

29 560 929

139 681 102

144 853 10

84 729 80

218 20 67

140 80 901

428 20 500

520 970 128

422 419 30

413 101 192

467 448 501

32 939 684

34 20 38

251 317 132

588 437 10

648 21 79

391 25 14

499 22 24

854 77 361

405 25 20

Case #1: yes

Case #2: no

Case #3: yes

Case #4: no

Case #5: yes