

Garden party (650 points)

Introduction

Skinny Pete is invited to a garden birthday party. He doesn't really like parties too much, but heard that the birthday cake is going to be really amazing and he wouldn't like to miss the chance to try it. There is only one little problem. There is a sprinkler system installed in the garden and by knowing his friends, there is a high chance of someone turning it on as a party prank.

Pete likes cake, but really hates getting wet. Luckily he found a sketch of the garden that has the location of the sprinklers and how far each one can sprinkle water.

*The garden looks like a rectangle that is open on one side and has the house in the opposite side.

*The cake is going to be in the house.

*The other two sides have fences so one can not enter through there, and the house does not have a back entrance.

Pete is interested to know if it is possible to enter the garden and get to the house without any risk of getting wet.

For simplicity we can think that the map of the garden is in Cartesian coordinate system.

*The garden is a rectangle that has sides parallel to the axes and having its bottom left corner at the origin (0, 0).

*The entrance to the garden is the left side and the the house is at the right side.

*Sprinklers are represented as circles with a center and a radius. Stepping anywhere inside such a circle might get you wet.

*For the purpose of this problem, and since Pete is so skinny, we can think of him as just a point travelling in the space, with real numbers as coordinates.

Input Specifications

First line of the standard input contains two space separated integers H and W, the height and the width of the garden.

Next line contains the number of sprinklers N.

After that N lines follow having three space separated **integers** each - X_i , Y_i and R_i . This a description of a sprinkler as a circle with center (X_i, Y_i) and radius R_i .

$1 \leq N \leq 128$

$1 \leq H, W \leq 1024$

$0 \leq X_i \leq W$

$0 \leq Y_i \leq H$

$1 \leq R_i \leq 1024$

Output Specifications

Output a single line containing “**CAKE**” (without quotes) if it is possible to get to the house without getting wet and “**NO CAKE**” (without quotes) otherwise.

Sample Input/Output

Input

```
10 25
3
24 6 3
2 7 2
21 5 4
```

Output

```
CAKE
```

Input

```
50 80
11
10 24 10
69 17 14
37 14 13
3 15 12
15 6 12
62 11 12
33 11 15
16 9 11
0 29 15
54 3 10
12 45 10
```

Output

```
NO CAKE
```