3. Run away

Problem ID: 8113 | Required Problem | 100pt(s)

> **Time Limit: 200ms Memory Limit: 131072kB**

Description

time limit：1s memory limit：128M

Description：

Ignatius was caught by a devil. One day, the devil is out. This is a great opportunity for Ignatius to run away.

The devil lives in a castle represented by an A*B*C cube (or A B*C matrices). At first, Ignatius is kept in (0,0,0). The exit is in (A-1,B-1,C-1). The devil will return to the castle in T minutes, and Ignatius can walk to one of the adjacent six coordinates in one minute. Please find out if Ignatius can leave the castle before the devil returns (as long as he can reach the exit, he can leave, even if the devil returns at exactly that time). If he can leave, print the time he needs. Otherwise, print -1.

Input：

The first line contains a positive integer K, the number of groups of test data.

In each group of test data:

The first line contains four positive integers A,B,C and T(1<=A,B,C<=50,1<=T<=1000), --- the size of the castle and the time the devil will return. The following lines describe the layout of the castle (A*B lines, C positive integers in each line). 0 is open, 1 is a wall. See sample input.

Output：

For K lines, if Ignatius can leave, print the minimum time he needs; otherwise, print -1.

Sample input 1:

```
1

3 3 4 20

0 1 1 1

0 0 1 1

0 1 1 1

1 1 1 1

1 0 0 1

0 1 1 1

0 0 0 0

0 1 1 0

0 1 1 0
```

Sample output 1:

```
11
```