A city is served by a number of fire stations. Some residents have complained that the distance from their houses to the nearest station is too far, so a new station is to be built. You are to choose the location of the fire station so as to reduce the distance to the nearest station from the houses of the disgruntled residents.

The city has up to 500 intersections, connected by road segments of various lengths. No more than 20 road segments intersect at a given intersection. The location of houses and firestations alike are considered to be at intersections (the travel distance from the intersection to the actual building can be discounted). Furthermore, we assume that there is at least one house associated with every intersection. There may be more than one firestation per intersection.

Input

The input begins with a single positive integer on a line by itself indicating the number of the cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive inputs.

The first line of input contains two positive integers: f, the number of existing fire stations ($f \leq 100$) and i, the number of intersections ($i \leq 500$). The intersections are numbered from 1 to i consecutively. f lines follow; each contains the intersection number at which an existing fire station is found. A number of lines follow, each containing three positive integers: the number of an intersection, the number of a different intersection, and the length of the road segment connecting the intersections. All road segments are two-way (at least as far as fire engines are concerned), and there will exist a route between any pair of intersections.

Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line.

You are to output a single integer: the lowest intersection number at which a new fire station should be built so as to minimize the maximum distance from any intersection to the nearest fire station.

Sample Input

```
1

1 6
2
1 2 10
2 3 10
3 4 10
4 5 10
5 6 10
6 1 10
```

Sample Output

```
5
```