# Pick-up Sticks

Once again, Lea invited Bea over for a nice laid-back afternoon of playing games. Bea almost always lost to Lea in the games they played, so Lea was looking forward to a relaxed time.

However, Bea is sick of losing. She spent the last week practicing all the games she ever played against Lea and as soon as she arrives at Lea's house, she announces that she challenges Lea for the title of "Queen of Games". Intrigued, Lea does not back down from the challenge but announces that she will not hold back and will try to win every single game. (The title does include some nice perks - Lea is looking forward to making Bea call her "Queen Lea, Crusher of Rooks, Bringer of Checkmates and Protector of the King" in front of all her other friends.)

Before moving on to the strategy games, they warm up by playing a game called "Pick-up Sticks" ("Mikado" in German). This is a game where a bunch of wooden sticks are dropped on the table where they end up in a jumbled pile. The player whose turn it is then tries to pick up one stick without moving any of the other sticks. For every stick he can take, he gets a set amount of points. If he fails and moves any other stick, his turn is over, the sticks are rejumbled and the next player can try.

Figure 1: Pick-up Sticks, from http://a.pragprog.com/magazines/2010-06/images/iStock_000001225226Small__10avt3__.jpg

Lea is (as usual) quite skilled at this game. As long as there is no other stick that lies directly on top of the stick she is trying to pick up, she will never fail. For a given pile of sticks, can you tell her how many points she will get?

## Input

The first line of the input contains an integer $t$. $t$ test cases follow, each of them separated by a blank line.

Each test case consists of a line containing two integers $n$ $m$. $n$ is the number of sticks that are still in the game. $m$ is the number of intersections of sticks, where one stick lies directly on top of another one. A line of $n$ space-separated integers $p_1 \dots p_n$ follows where $p_i$ is the point value of the $i$-th stick. $m$ lines follow. The $j$-th line contains two integers $a_j$ $b_j$ and means that there is a point where stick $a_j$ lies directly on top of $b_j$.

## Output

For each test case, print a line containing "Case #$i$: $p$" where $p$ is the maximum number of points Lea can get.

## Constraints

- $1 \leq t \leq 20$

- $2 \leq n \leq 10000$
- $1 \leq m \leq 100000$
- $p_i \in \{2, 3, 5, 10, 20\}$ for all $1 \leq i \leq n$
- $1 \leq a_j \neq b_j \leq n$ for all $1 \leq j \leq m$
- If stick $a_j$ lies on top of stick $b_j$, then $b_j$ can not lie on top of $a_j$ for all $1 \leq j \leq m$.

**Sample Input 1**

```
7
5 4
2 3 3 5 20
1 2
2 5
4 5
5 3

5 4
2 3 3 5 20
1 2
2 5
5 3
3 2

5 4
5 3 3 2 20
1 5
3 4
3 4
4 5

3 3
3 3 3
1 3
2 1
3 2

4 4
20 20 10 10
2 3
2 4
2 1
4 1

5 4
3 20 20 10 20
1 4
1 5
1 2
4 5

9 8
5 10 2 20 5 5 2 10 5
1 2
1 9
2 6
3 2
4 3
4 1
5 2
6 9
```

**Sample Output 1**

```
Case #1: 33
Case #2: 7
Case #3: 33
Case #4: 0
Case #5: 60
Case #6: 73
Case #7: 64
```

**Sample Input 2**

```
7
4 4
20 3 2 20
1 3
1 2
3 4
3 4

4 5
3 3 20 20
2 3
2 3
2 4
2 3
3 4

4 2
3 3 3 20
2 1
4 1

4 3
10 2 3 20
1 4
2 3
2 4

5 4
3 2 5 2 10
1 3
4 5
4 5
4 5

4 1
2 10 10 20
3 4

3 4
2 3 2
1 2
1 3
1 3
3 2
```

**Sample Output 2**

```
Case #1: 45
Case #2: 46
Case #3: 29
Case #4: 35
Case #5: 22
Case #6: 42
Case #7: 7
```