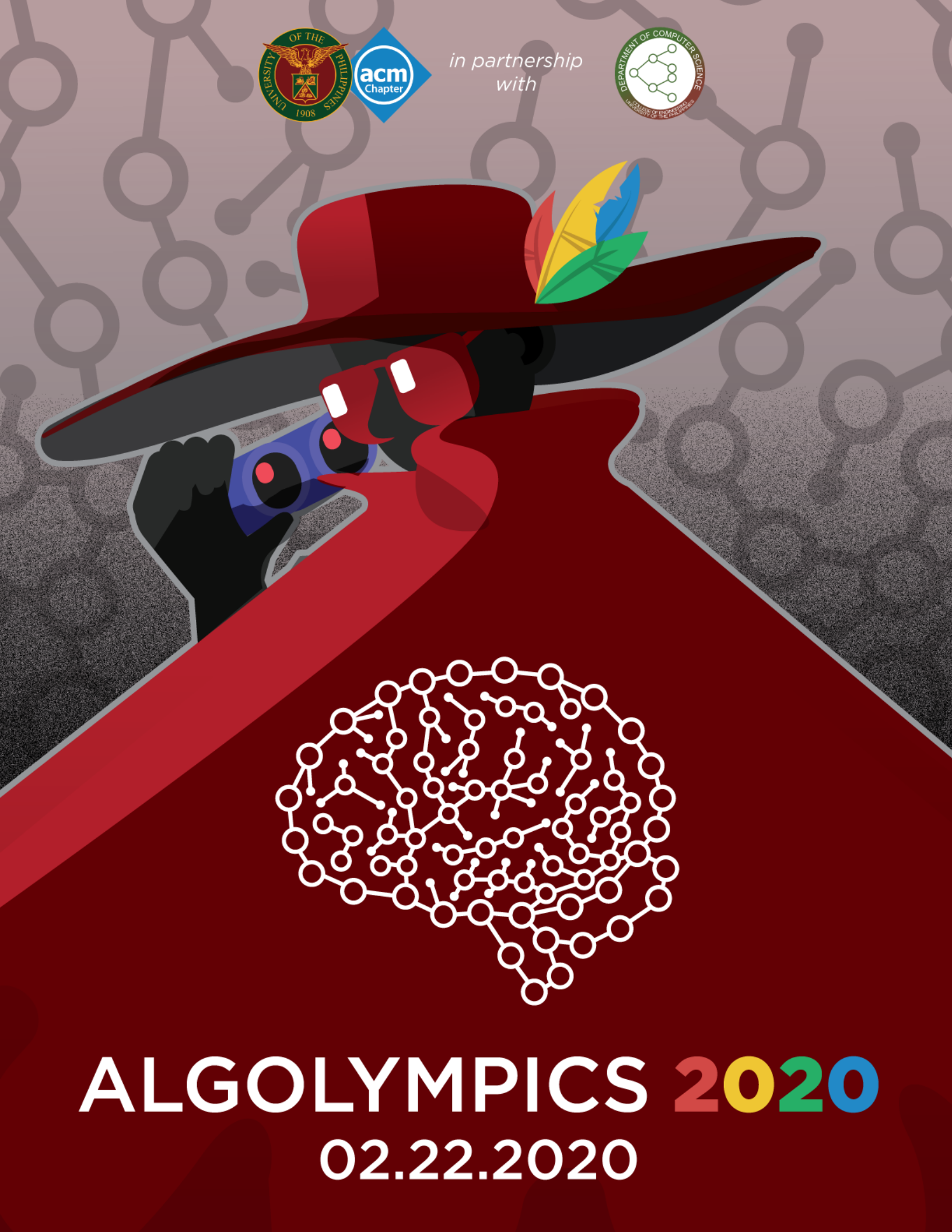
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Sample Problem: Incomplete Model Kits

Time Limit: 3 seconds

It's Christmas, and you need to buy a gift for your godchild! While going home you saw a toy store having a clearance sale, and you managed to sweep up some really good looking buildable model kit toys for a really deep discount.

Each **model kit** contains multiple **parts** that are connected together to form a **model**. Most parts are connected and placed on top of other parts, and those at the bottom and not connected on top of other parts must be placed on top of a generic **base**. Since the model kit toys are different, one model kit may require only one base (as in the case of a simple humanoid model), but another one may require multiple bases (as in the case of a four legged robot model).

Blinded by the cheap price however, you failed to realise that the model kits did not have enough bases. So now, you want to maximise the number of model kit **parts** you use - your logic being that using more parts means the models you get should look more sophisticated. Note that bases are generic - they can be used interchangeably for any model kit. Note also that you do not need a base for parts that are connected and placed on top of other parts, but need one base for each that don't.

Also, if you choose to setup a certain model kit, you must be able to setup that whole model kit, otherwise that specific model would not be complete.

Input

The first line of input contains a single integer T ($1 \leq T \leq 50$), the number of test cases.

The first line of each test case contains a single integer B ($1 \leq B \leq 300$), the number of bases that you have. The second line contains a single integer S ($1 \leq S \leq 50$), the number of model kits you bought. Then follow the S model kits.

Each model kit starts with a single line containing two space-separated integers N ($1 \leq N \leq 50$), the number of parts in the kit, and M ($0 \leq M \leq 100$) indicating the number of connection between parts in the kit. M lines follow, each with two integers a and b ($1 \leq a, b \leq N$), indicating that b is placed on top of a. The parts are numbered from 1 to N for convenience.

It is guaranteed that no part will be required to sit on top of itself, whether directly or indirectly.

Output

For each test case, output a single line containing a single integer denoting the most number of total model kit parts that you are able to use.

Sample Input	Sample Output
2 5 2 4 3 1 3 2 3 3 4 3 0 1 1 4 3 1 2 2 3 4 1	7 4