

Travelling tours

In Hanoi, there are N beauty-spots ($2 \leq N \leq 200$), connected by M one-way streets. The length of each street does not exceed 10000. You are the director of a travel agency, and you want to create some tours around the city which satisfy the following conditions:

- Each of the N beauty-spots belongs to exactly one tour.
- Each tour is a cycle which consists of at least 2 places and visits each place once (except for the place we start from which is visited twice).
- The total length of all the streets we use is minimal.

Input

The first line of input contains the number of testcases t ($t \leq 15$). The first line of each testcase contains the numbers N, M . The next M lines contain three integers $U V W$ which mean that there is one street from U to V of length W .

Output

For each test case you should output the minimal total length of all tours.

Example

Input:

```
2
6 9
1 2 5
2 3 5
3 1 10
3 4 12
4 1 8
4 6 11
5 4 7
5 6 9
6 5 4
5 8
1 2 4
2 1 7
1 3 10
3 2 10
3 4 10
4 5 10
5 3 10
5 4 3
```

Output:

```
42
40
```

Detailed explanation:

Test 1:

Tour #1: 1 - 2 - 3 - 1 --> Length = 20

Tour #2: 6 - 5 - 4 - 6 --> Length = 22

Test 2:

Tour #1: 1 - 3 - 2 - 1 --> Length = 27

Tour #2: 5 - 4 - 5 --> Length = 13