

## Doudizhu

### Problem Description

Niuniu has recently become obsessed with a poker game called Doudizhu. Doudizhu is a card game played with a total of 54 cards, including Aces to Kings of spades, hearts, clubs, diamonds, and Jokers. In Doudizhu, the rank of the card is based on the number of cards as follows:  $3 < 4 < 5 < 6 < 7 < 8 < 9 < 10 < J < Q < K < A < 2 < \text{black joker} < \text{red joker}$ , and the suit does not have an impact on the rank of the card. In each game, a hand consists of  $n$  cards. Players can play cards according to the prescribed card type each time, and the first person to empty his/her hand wins the game.

Now, Niuniu just wants to know, for his several groups of hand cards, respectively, the minimum number of times he needs to draw his cards to empty his hands. Please help him solve this problem.

It should be noted that in this case, the player can play a similar but slightly different card type with the general rules of Doudizhu. The specific rules are as follows:

Card Type	Description	Example
Rocket	Two jokers.	
Bomb	Four cards with the same rank. For example, 4 Aces.	
Single Card	A single card. For example, 3.	
Pair	Two cards with the same rank.	
Three Cards	Three cards with the same rank.	
Three Plus One	Three cards with the same rank+one single card. eg: three 3s+one 4	
Three Plus Two	Three cards with the same rank+a pair of card. eg: three 3s+a pair of 4s	
Straight	5 or more cards with continuous ranks (except 2s and jokers). eg: 7+8+9+10+J. For straights (including Straights, Straight Pairs, Straight Threes), the suits don't have to be the same.	
Straight Pairs	3 or more pairs with continuous ranks (except 2s and jokers). eg: two 3s+two 4s+two 5s.	
Straight Threes	2 or more threes with continuous ranks (except 2s and jokers). eg: three 3s+three 4s+three 5s.	
Four Plus Two	4 cards with the same rank+2 single cards or 2 pairs of cards. eg: four 5s+3+8 or four 4s+two 5s+two 7s.	

**Input**

The first line contains 2 positive integers T and n, separated by a space, indicating the number of groups of hands and the number of cards in each group.

Then, there are T groups of data. Each group contains n rows, and each row contains a non-negative integer pair  $a_i, b_i$ , representing a card, where  $a_i$  represents the rank of the card, and  $b_i$  represents the suit of the card, separated by a space. Specifically, we use 1 for rank A, 11 for rank J, 12 for rank Q, and 13 for rank K. Spades, hearts, clubs, and diamonds are represented by 1-4; The black joker is represented by 0 1, and the red joker is represented by 0 2.

**Output**

There are T lines, one integer per line, indicating the minimum number of times to empty the hands in the  $i_{th}$  group.

**Sample Input 1**

```
1 8
7 4
8 4
9 1
10 4
11 1
5 1
1 4
1 1
```

**Sample Output 1**

```
3
```

**Sample Input 2**

```
1 17
12 3
4 3
2 3
5 4
10 2
3 3
12 2
0 1
1 3
10 1
6 2
12 1
```

11 3  
5 2  
12 4  
2 2  
7 2

### Sample Output 2

6

### Hint

#### [Explanation of Sample 1]

There is a hand of 8 cards: 7 of diamonds, 8 of diamonds, 9 of spades, 10 of diamonds, Jack of spades, 5 of spades, Ace of diamonds, and Ace of spades. It can be played in 3 turns by playing straight (7 of diamonds, 8 of diamonds, 9 of spades, 10 of diamonds, Jack of spades), a single card (5 of spades), and pair (Ace of diamonds, and Ace of spades).

For different test points, the scale of the number of groups of hands  $T$  and the number of cards  $n$  as follows:

Test Point	$T$	$n$	Test Point	$T$	$n$
1	100	2	11	100	14
2	100	2	12	100	15
3	100	3	13	10	16
4	100	3	14	10	17
5	100	4	15	10	18
6	100	4	16	10	19
7	100	10	17	10	20
8	100	11	18	10	21
9	100	12	19	10	22
10	100	13	20	10	23

The data guarantees that: All hands are randomly generated.