

Longest Distance

Lili is very fond of chess, so she invited her friend Jojo to play chess too. But this is the first time Jojo played chess, so Lili taught Jojo to play using the queen alone without other chess pieces. Jojo, who was playing for the first time, only understood that it would be better if the queen moves as far as possible. But because Jojo was confused, Jojo asked for your help to find the furthest distance of the queen in a single move!

Format Input

The first line contains T , the number of test cases.

Each test case consists of one line containing A and B , the coordinate of the queen.

Format Output

For each test case output "Case #X: Y" where X is the case number, and Y is the furthest distance that can be reached by the queen.

Constraints


$$1 \leq T \leq 1000$$

$$1 \leq B \leq 8$$

A is a lowercase letter from 'a' to 'h'.

Sample Input	Sample Output
3 a 1 b 2 d 5	Case #1: 7 Case #2: 6 Case #3: 4

Explanation of test case 3 :

	A	B	C	D	E	F	G	H
8	3			3			3	
7		2		2		2		
6			1	1	1			
5	3	2	1		1	2	3	4
4			1	1	1			
3		2		2		2		
2	3			3			3	
1				4				4

For the 3rd test case the queen can move as shown so that it produces the longest distance as 4

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