

## Problem E - Exhausting Pizza Permutations

The PanaJohn's delivery of pizza is here! Daniel and  $n - 1$  other people at ACM practice head out to pick up the  $n$  boxes pizza. They walk back, each holding exactly one box of pizza in a neat and orderly row like good little programmers. Each box of pizza has a different size. While they walk back they decide to play a game. The game is played one round at a time until a specific condition is reached. In each round of the game, exactly one person will give one of the boxes of pizza he's holding to the person to the left or the person to the right. The pizza boxes can be stacked on top of one another, but only the top pizza box can be moved. Nobody will ever put a larger pizza box on top of a smaller pizza box. The game ends if after a round, each person has one box, and the boxes are arranged in ascending order with the smallest box on the left and the largest box on the right.

Daniel is coordinating the game, so he can tell people to move the top box of their stack left or right. However Daniel thinks this game is dumb, so he wants to end the game as soon as possible. He wants to know what the minimum number of rounds he needs to play before the game will end.

### Input

The first line contains an integer  $T$  denoting the number of test cases.

Each test case is one line. For each test case the line will begin with  $n < 8$  the number of pizza boxes and people carrying pizza boxes. Assume all the boxes have different sizes and are label by their size  $1, 2, \dots, n$  with 1 being the smallest box, and  $n$  being the largest box.

### Output

For each test case output one line, either the minimal number of moves before the game will end, or IMPOSSIBLE if the game will never end.

### Sample Input

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2
3 3 2 1
2 2 1
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### Sample Output

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20
IMPOSSIBLE
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