Chess - 278

*Extracted from:*UVa Online Judge
Source file name: `chess.py`
Time limit: 3

Almost everyone knows the problem of putting eight queens on an 8×8 chessboard such that no Queen can take another Queen. Jan Timman (a famous Dutch chessplayer) wants to know the maximum number of chesspieces of one kind which can be put on an $m \times n$ board with a certain size such that no piece can take another. Because it's rather difficult to find a solution by hand, he asks your help to solve the problem.

He doesn't need to know the answer for every piece. Pawns seems rather uninteresting and he doesn't like Bishops anyway. He only wants to know how many Rooks, Knights, Queens or Kings can be placed on one board, such that one piece can't take any other.

Input

The first line of input contains one character from the following set 'r', 'k', 'Q', 'K', meaning respectively the chesspieces Rook, Knight, Queen or King. The second line contains the integer $m (4 \leq m \leq 10)$, meaning the number of rows, and, the third line contains the integer $n (4 \leq n \leq 10)$, meaning the number of columns of the board.

The input must be read from standard input.

Output

Your program should output the maximum number of chesspieces which can be put on a board with the given format, so they are not in position to take any other piece.

Note: The bottom left square is 1, 1.

The output must be written to standard output.

Sample Input	**Sample Output**
r 6 7	6

Sample Input	**Sample Output**
k 8 8	32