You are given a 8X8 chessboard with a knight with initial coordinates (Si,Sj). N moves have been played on the knight. You have to find the probability of finding the knight on the final coordinates (Fi,Fj).

The knight can move from its position in the diagram to all the coordinates marked by X in the following diagram in one move. For the 8X8 chessboard (1,1) is the top-left corner, (1,8) is the top-right corner and (8,8) is the bottom-right corner.

Input

The first line of input will contain the initial coordinates of the knight Si,Sj

The second line of input will contain a single integer N representing the number of moves played on the knight.

The third line of input will contain the coordinates of the final position of the knight Fi,Fj.

Output

Print a decimal representing the probability of finding the knight on the final coordinates after N moves.

Example

Input

5 5

1

7 4

Output

0.12500

Explanation

Since the knight is placed at (5,5) initially, it can move in 8 different ways in 1 move and go to 8 different blocks, (7,4) being one of those possible blocks. Therefore the probability of finding the knight at (7,4) after 1 move is 1/8 = 0.125.