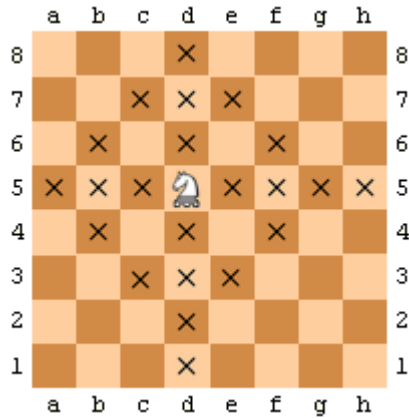


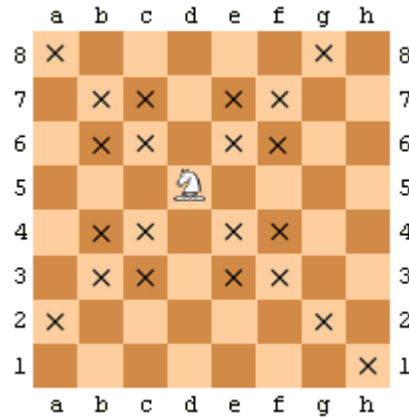
### CHESS (100 points)

You are working on a chess variant game with a standard 8x8 board and two sides (black and white), but with different piece types:

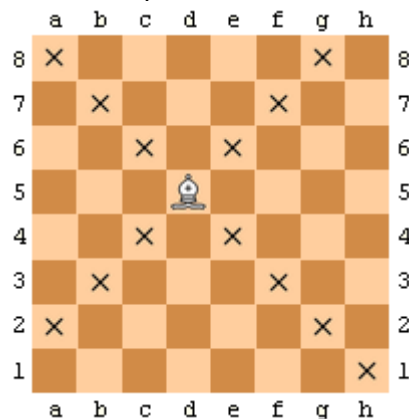
- The *queen* moves exactly like a queen in standard chess.
- The *elephant* moves like a rook or a knight
- The *hawk* moves like a bishop or a knight



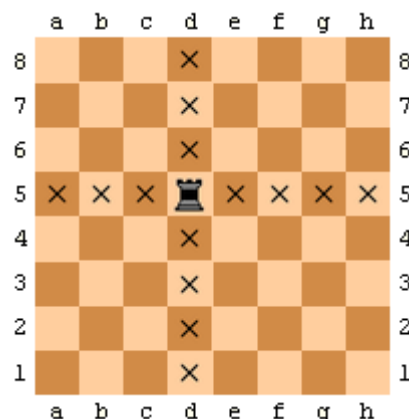
Elephant moves



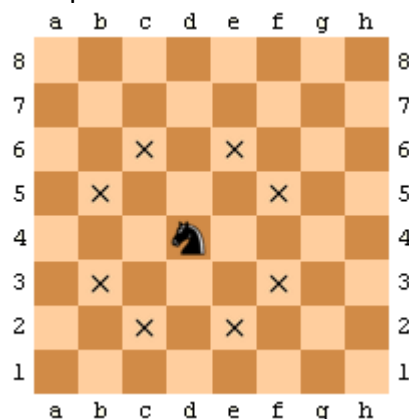
Hawk moves



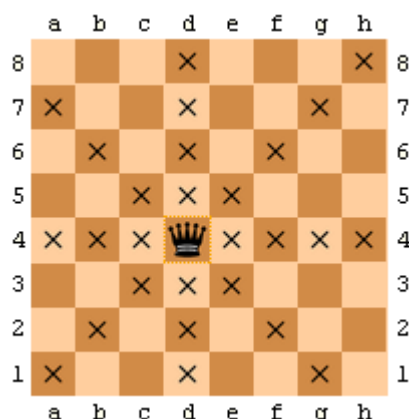
Bishop moves in standard chess.



Rook moves in standard chess.



Knight moves in standard chess.



Queen moves in standard chess.

Pure straight-line moves can only go as far as they are unobstructed: jumping over other pieces is not allowed. No piece may land on a square occupied by another piece of the same colour. A piece can always land on a square occupied by the opposite colour (capturing that piece).

You are working on the AI for this game, and as part of this, you must write code to generate all possible moves for a given board position.

### **TASK**

Write a program that, given a description of a board position, and a piece, computes the number of possible moves by that piece.

### **TIME LIMIT**

A time limit of 1 second will be placed upon your programme for each test case.

### **INPUT**

Your programme must read from standard input, the following set of data:

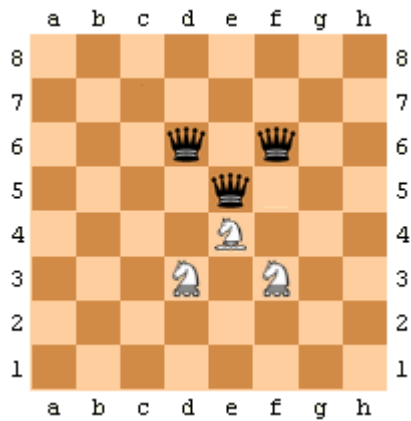
- Line 1 contains an integer N, the number of pieces on the board.
- Each of the next N lines describes a single piece with 3 fields: colour, type, and square in that order, separated by a space. "Colour" is 'w' or 'b' for white or black respectively. "Type" is 'q', 'e' or 'h' for queen, elephant and hawk respectively. The square is a letter-number (column-row) pair, from 'a1' for the bottom left and 'h8' for the top right corner of the board.
- The last line of the file contains the letter-number pair for a piece; this is the piece your programme should calculate moves for.

### **OUTPUT**

Your programme must write to standard output a single integer M, the number of possible moves for the given piece.

**EXAMPLE**

Sample input	Sample output
6 b q d6 b q f6 w e f3 w h e4 b q e5 w e d3 f3	16



This work is licenced under a [Creative Commons Licence](https://creativecommons.org/licenses/by-nc/4.0/).