

Bishop Moves

Problem Description

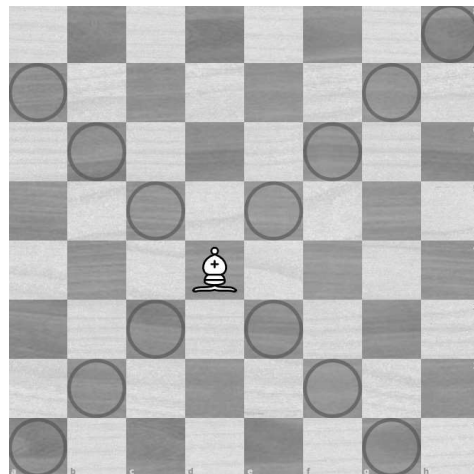
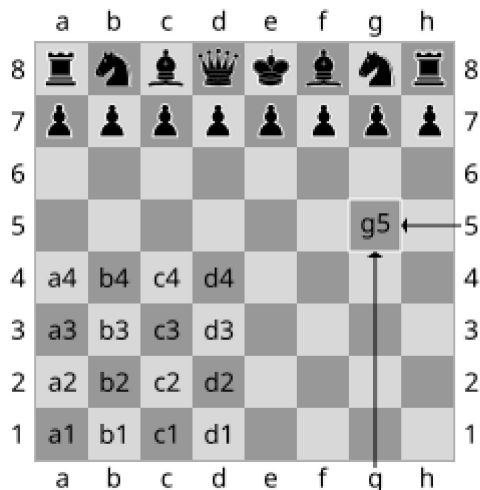
Given a position on a standard 8×8 chessboard, determine how many squares a bishop can move to from that position.

A bishop moves diagonally in four directions until it reaches the edge of the board.

Your task is to compute the total number of reachable squares.

The chessboard uses algebraic notation:

- Files: A–H (left to right)
- Ranks: 1–8 (bottom to top)
- A1 is the bottom-left corner, H8 is the top-right corner.



(Left: A Chess board with algebraic coordination, wiki;
Right: The possible moves of a bishop)

Input Format

The first line contains a positive integer N .

Each of the following N lines contains a chess coordinate in the form XY , where:

- X is a capital letter A–H (file)
- Y is a digit 1–8 (rank)

Example valid inputs: A1, C7, H5

Output Format

For each test case, output the total number of squares the bishop can move to from that position.

Each result is printed on its own line.

Examples Input

3
D4
A1
C7

Examples Output

13
7
9