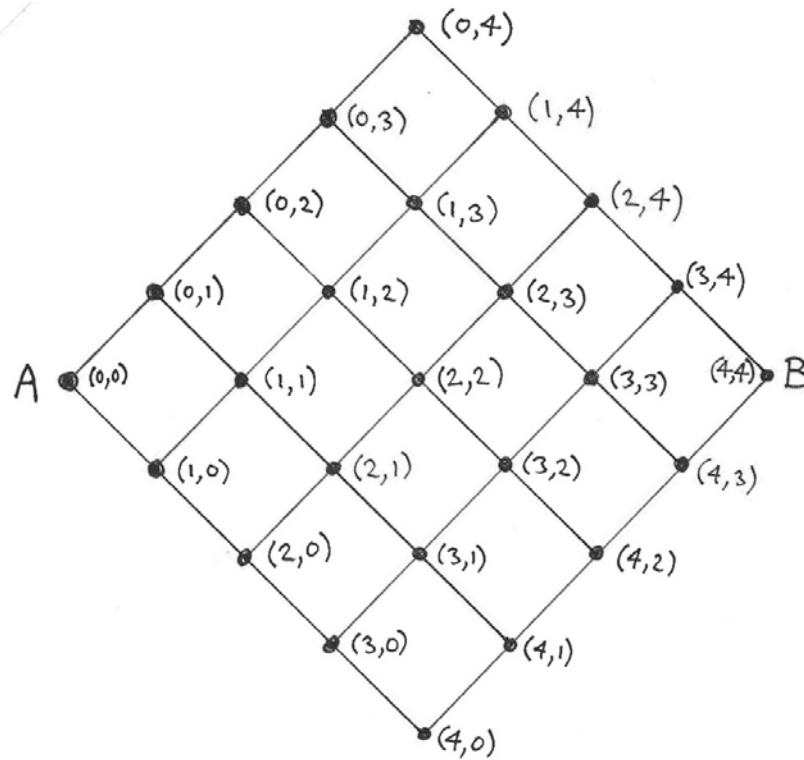A "diamond graph" of size N is a square arrangement of N×N nodes, each with a connection to all of its immediate (up, down, left, right) neighbours, but it is rotated by 45° so that it takes on a diamond shape.

(0,4)
(0,3) (1,4)
(0,2) (1,3) (2,4)
(0,1) (1,2) (2,3) (3,4)
A (0,0) (1,1) (2,2) (3,3) (4,4) B
(1,0) (2,1) (3,2) (4,3)
(2,0) (3,1) (4,2)
(3,0) (4,1)
(4,0)

The left-most mode (0,0) is known as A, and the rightmost node (N-1,N-1) is known as B.

The question is, how many <u>different</u> paths are there from A to B?