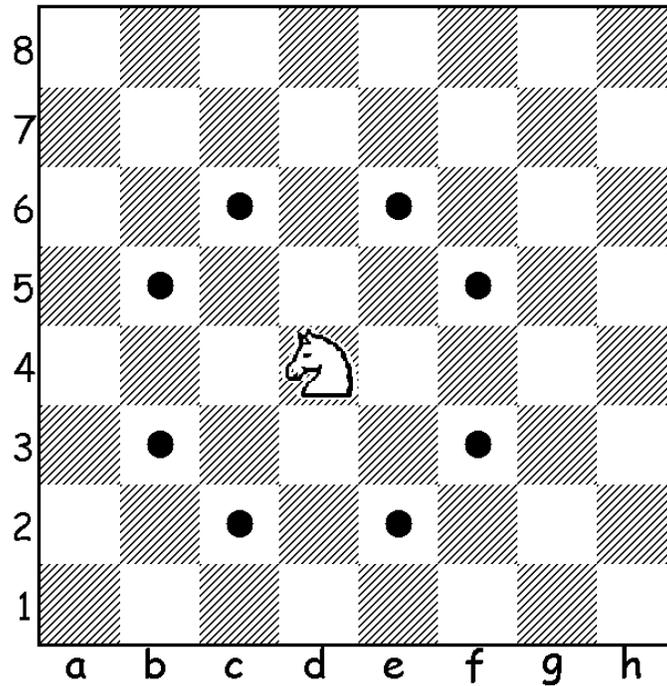


A knight starts in one of the 4 central squares of an  $8 \times 8$  chessboard. Once per second it makes a legal move chosen uniformly at random. How many moves do we expect to make before returning to its starting point?



(A legal move for a knight means jumping 2 squares horizontally and 1 square vertically or vice versa, and the knight must stay on the board. So there are 8 legal moves from the initial position but only 2 legal moves from the corner.)