

# Chapter 1 : Parity

**Prob 2 :** On a chessboard, a Knight starts from square a1, and returns there after making several moves. Show that the Knight makes an even no. of moves.

between

a  
b  
c  
d  
e  
f  
g  
h

W	B	W	B	W	B	W	B
B	W	B	W	B	W	B	W
W	B	W	B	W	B	W	B
B	W	B	W	B	W	B	W
W	B	W	B	W	B	W	B
B	W	B	W	B	W	B	W
W	B	W	B	W	B	W	B
B	W	B	W	B	W	B	W
1	2	3	4	5	6	7	8

**Observation :** To move ~~from~~ any two squares of same color requires an even no. of moves (always).

To move from a black to white square (or vice-versa), it takes an odd no. of moves always.

Since ~~the~~ the Knight starts and returns to a1, it's clear from above observation that we must have an even no. of moves.

**Prob 3 :** Can a Knight start at square a1 of a chessboard, and go to square h8, visiting each of the remaining squares exactly once on the way?