

Discrete Optimization

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Name:

1 Preparation for Lecture-6

Find the smallest number of knight moves on a chess board from the square marked S to the square marked F.

	A	B	C	D	E	F	G	H
1		■	■			S	■	
2	■	■		■	■			
3			■			■	■	
4				■	■	■		
5		■	■				F	■
6			■			■		
7	■	■					■	■
8	■	■						

Table 1: The knights shortest path

Four knights are placed on a 3×3 chess board. They move like knights on a regular board. They are friendly so they never step on a square occupied by another knight.

Your mission is to move the knights so that the knights marked A will trade places with knights marked by B. Ideally, your design should use the smallest number of moves.

A		B
B		A

Table 2: Trading places