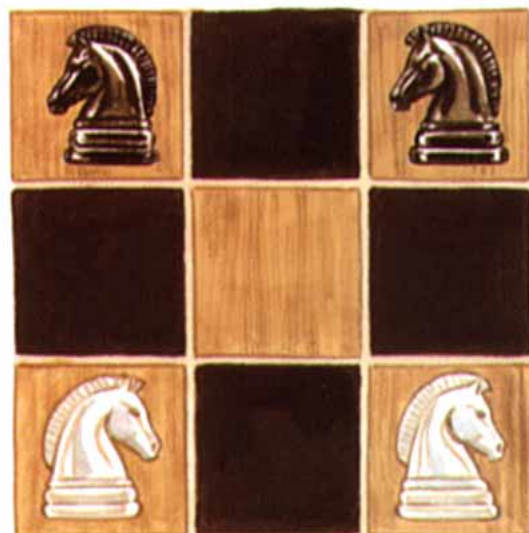


### The Problem

The Champions Chess Club was discussing the moves of the chess pieces when their sponsor, Mr. Martinez, posed the following problem: “We know that in chess a knight moves to the opposite corner of a  $3 \times 2$  rectangle and that we have two white and two black knights. If we put the black and white knights on the opposite corners of a  $3 \times 3$  section of checkerboard (see diagram), what is the least number of moves it will take to interchange their positions?”



### Strategies and Hints

1. Make sure you know exactly how a knight in chess moves.
2. Simulate the problem using pennies and nickels on a  $3 \times 3$  piece of graph paper.
3. Describe the two different types of first moves. How many different second moves are there for each of the two different first moves?
4. Number the squares and assign letters to the knights. Record your moves by a notation such as A-6, which means knight A moves to square 6.
5. Simplify the problem by using only one white and one black knight placed on diagonal corners of a  $3 \times 3$  square.
6. Draw lines from the center of each square to the center of the square where it might possibly move.