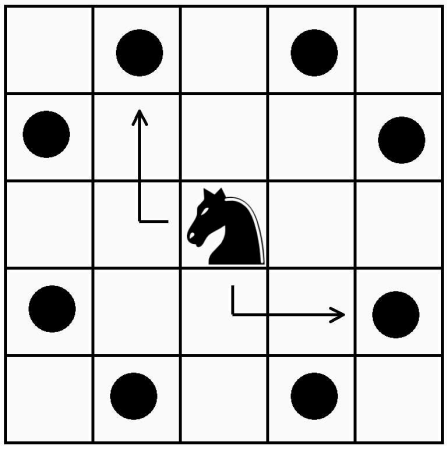
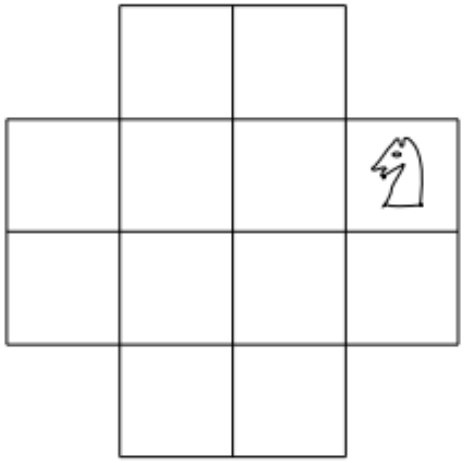
Mathletes Problem of the Week #3

Knight's Tour





© University of Washington Math Circle

On a chessboard, the knight piece moves in a special way: either two spaces vertically and one horizontally, or two spaces horizontally and one vertically (see first image).

In our problem, we have a chessboard in the form of a cross (see second image).

a) Can the knight start on the square shown and travel around this chessboard, using the usual knight's move, passing through each square exactly once and ending up on the same square it starts on?
b) What if the knight starts on a different square? Is it always possible, sometimes possible, or never possible? Explain.

Solutions & Explanations: (Draw out your best solution(s) above or on the back and describe them below and on the back.)

Name _____ **Class** _____

(First and last name, please!) **Solutions due: October 19th**