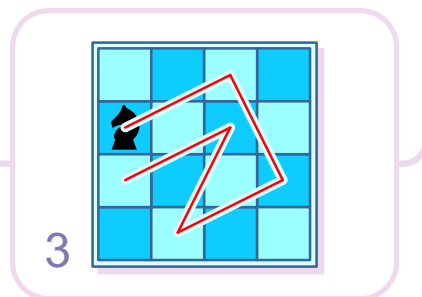
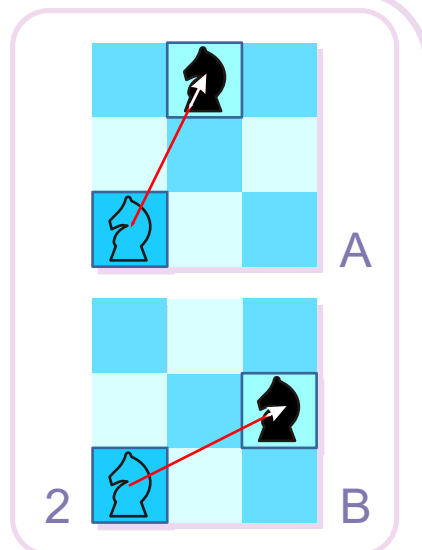
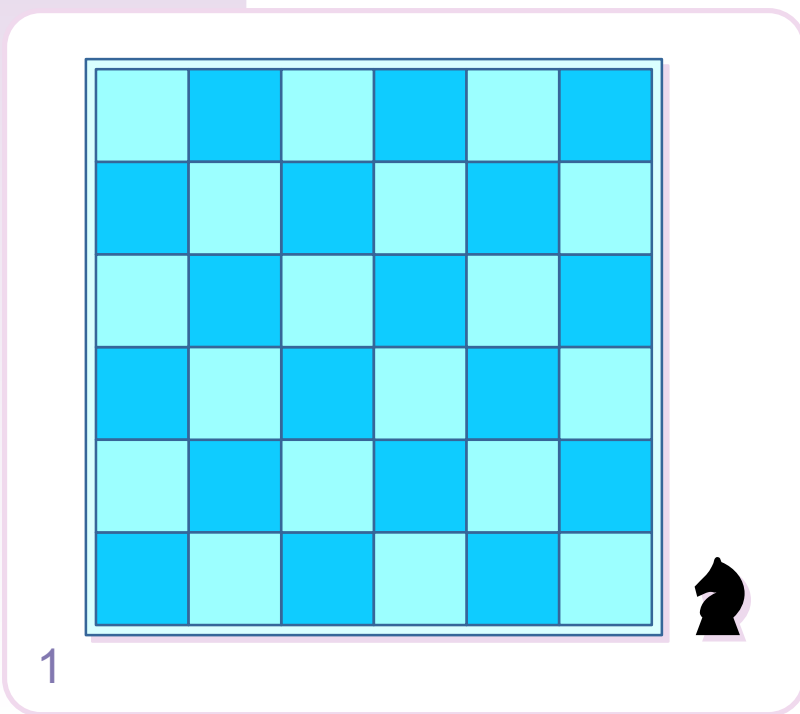


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The Knight's Tour 2 *after Martin Gardner*

What is the longest possible route without self-crossings for the chess knight to travel on the 6x6 board shown in Figure 1?

To see what the route "without self-crossings" means, let's show any route of the knight by drawing on the board a broken line that will join the centers of the successive cells visited by the knight. The examples of such lines for a single move of the knight are shown in Figure 2.

Now for a 4x4 board such a route without self-crossing may be shown as that in Figure 3. This 5-move route is the longest possible for this small board; not unique, though.

There is a 16-move route for a 6x6 board. Try to find it.

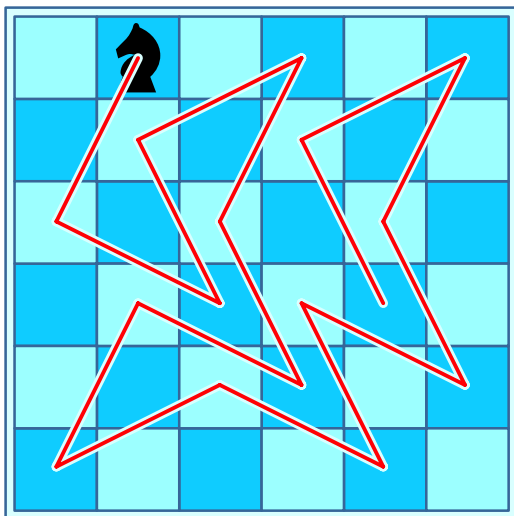
After that try to improve this route adding to it one more move. This new 17-move route makes the longest possible tour of the chess knight without self-crossing for a 6x6 board. It's unique, and hard to find. Can you discover it?

May 2, 2004

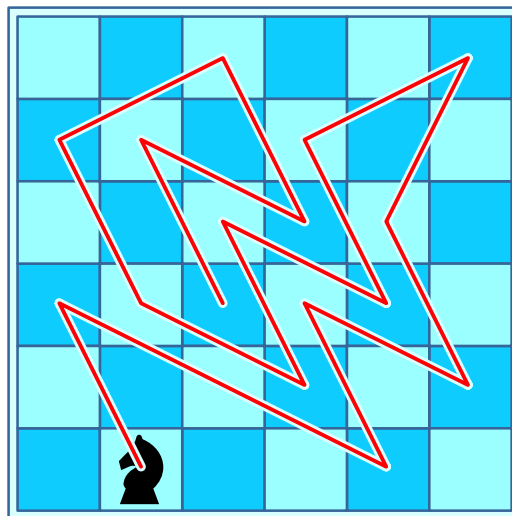
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1



2

The Knight's Tour 2 (solutions)

The 16-move solution for the knight's tour without self-crossing on a 6x6 board is shown in Figure 1.

It consists of exactly 16 segments what makes exactly 16 moves.

The unique 17-move solution for the longest possible route of the chess knight without self-crossing for a 6x6 board is shown Figure 2.

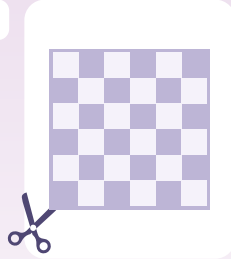
It has exactly 17 segments.

This fantastic route was found by Donald Knuth.

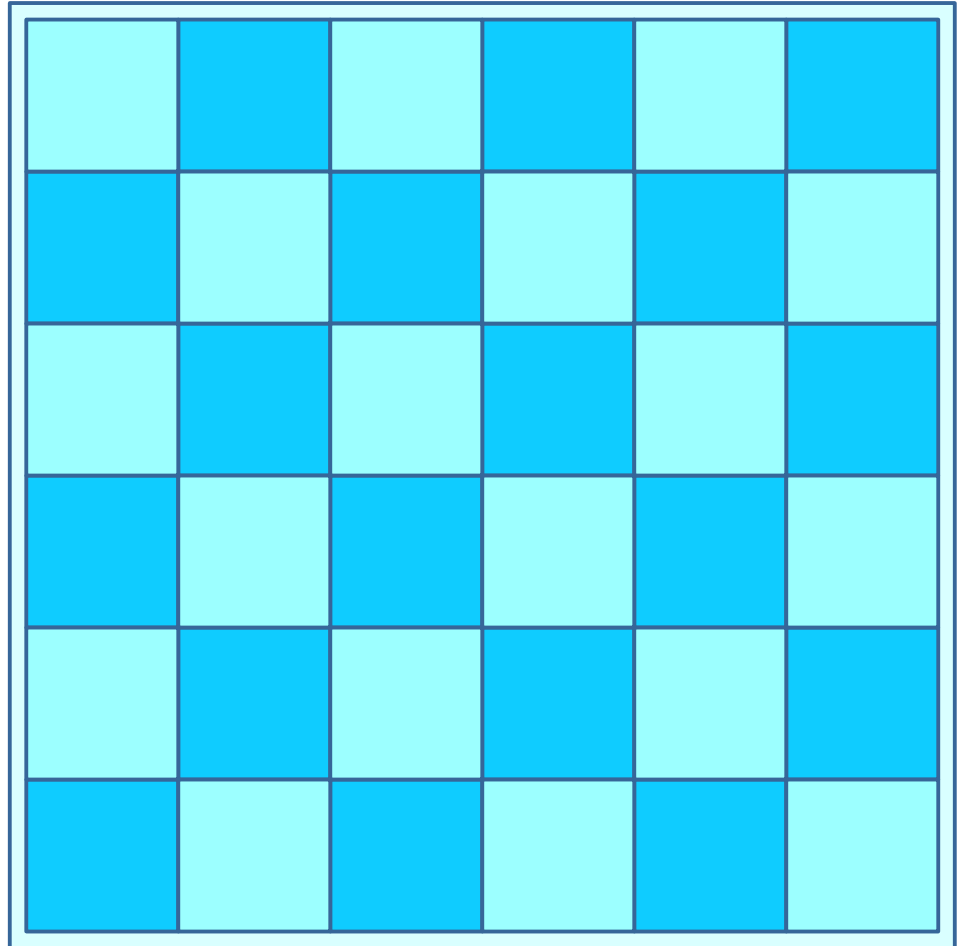
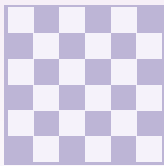
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1



F



The Knight's Tour 2 (board)

To produce the board first print it out. Then follow the diagram shown in the left column above - from step 1 to step F (finish).