EULER CIRCUITS

1. Bridges of Königsberg

In 1736, the city of Königsberg in Prussia had a peculiar river layout, with seven bridges:
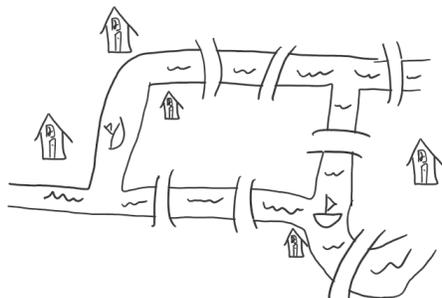

Lehonard Euler, the famous mathematician, asked the following question:

Question. *Is there a path through the city that passes through every bridge exactly once? The path may start and end at different points.*

2. Small town roads

Consider a small town with six houses connected by roads:
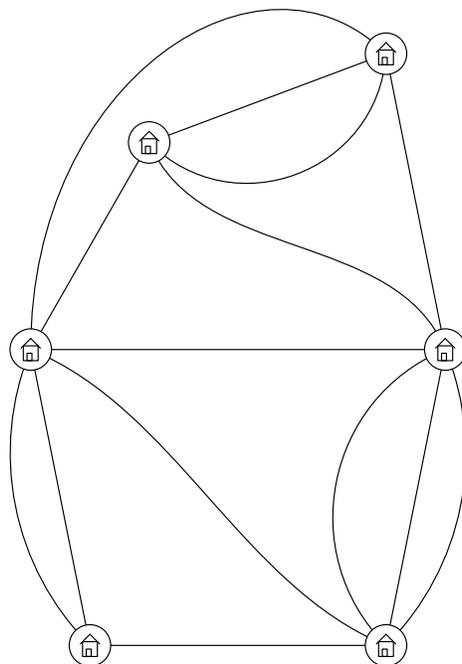
Question. *Can you go between the houses passing along every road exactly once? You don't have to start and end at the same house.*

3. House with Five Rooms

Let's say we have a house with five rooms and doors as shown below:
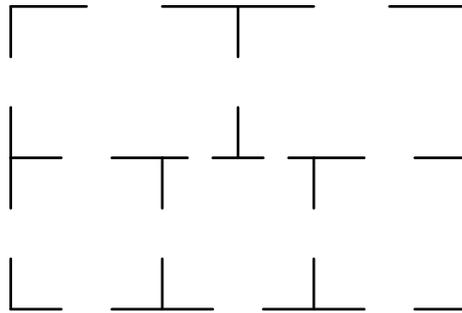
Question. *Can you go between the rooms, passing through every door exactly once? You may start in any room, and end in any room (or outside).*

Question. *Let's say we remove the top two rooms? Can you do it? Try this in the space below.*
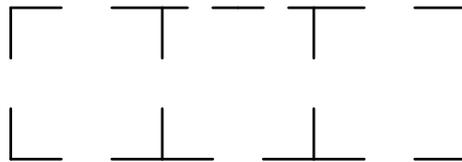
Do you notice any similarity between these problems? How did you solve them? What do your paths look like? Can you think of a way to phrase the rooms question like the small town question?