

Two Famous Graph Theory Problems

Problem of the Seven Bridges of Konigsberg

The Prussian city of Konigsberg, now Kaliningrad in Russia, is located on the banks and on two islands of the river Pregel. Seven bridges connect the land masses as shown in Figure 1. As the city residents walked about the town, was it possible to return to neo's starting point after having crossed each of the seven river bridges once and only once?

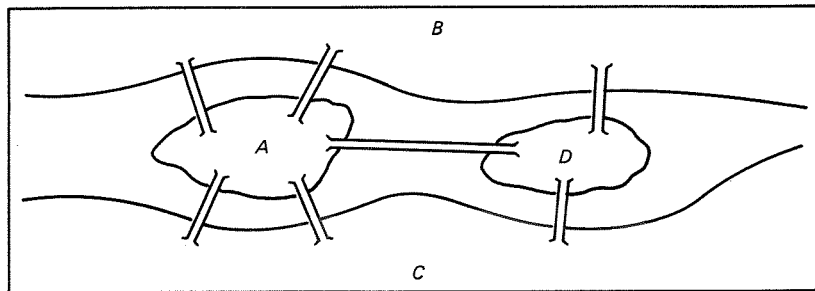


Figure 1.

Problem of Walking through Doorways

Consider the floor plan of Figure 2 that consists of five rooms interconnected with themselves and the outside by doors on every wall. Can one start in one room or the outside, walk through every doorway exactly once, and return to the starting point?

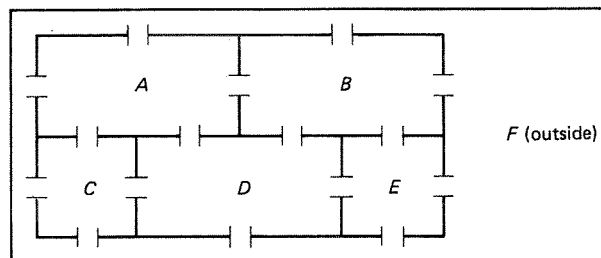


Figure 2.