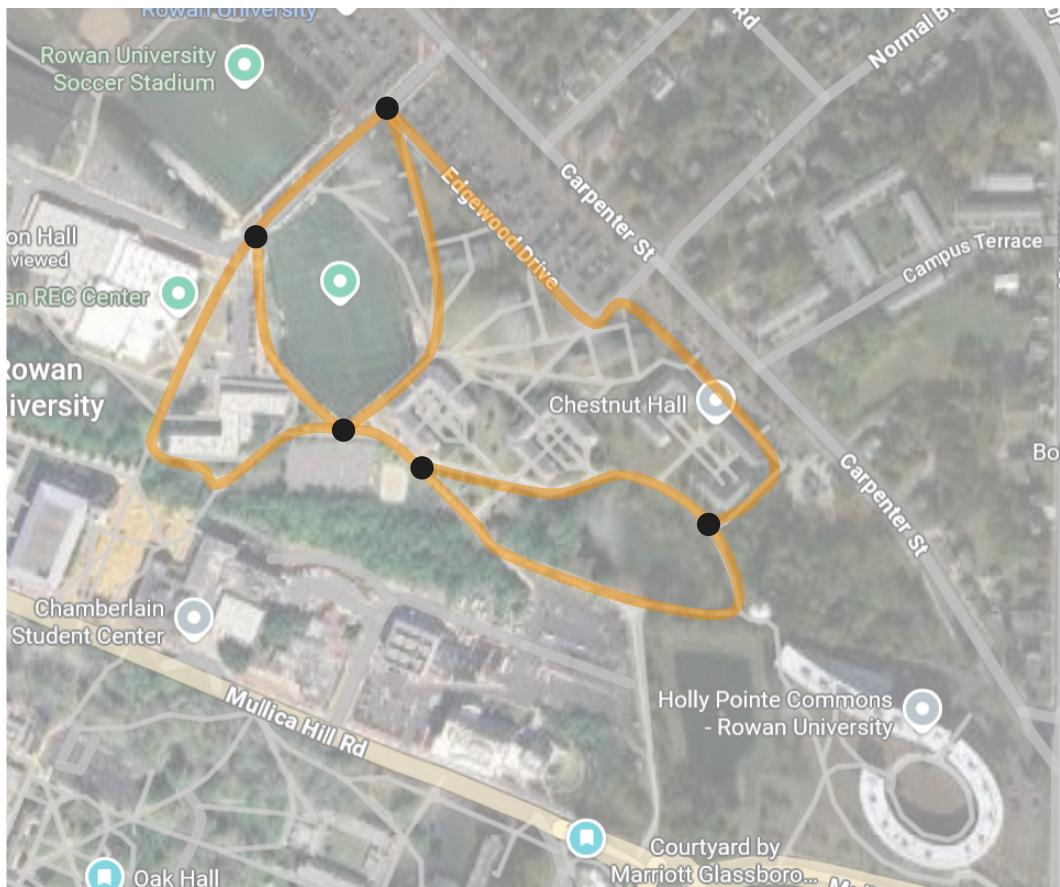


# Lesson 8 — Euler paths and circuits

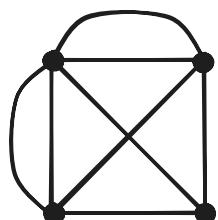
Complete the problems below with proper justification.

## Problems

1. To make the dorms safer, the university can let one security guard patrol the paths shown. Can the guard complete this path by foot without retracing their steps?

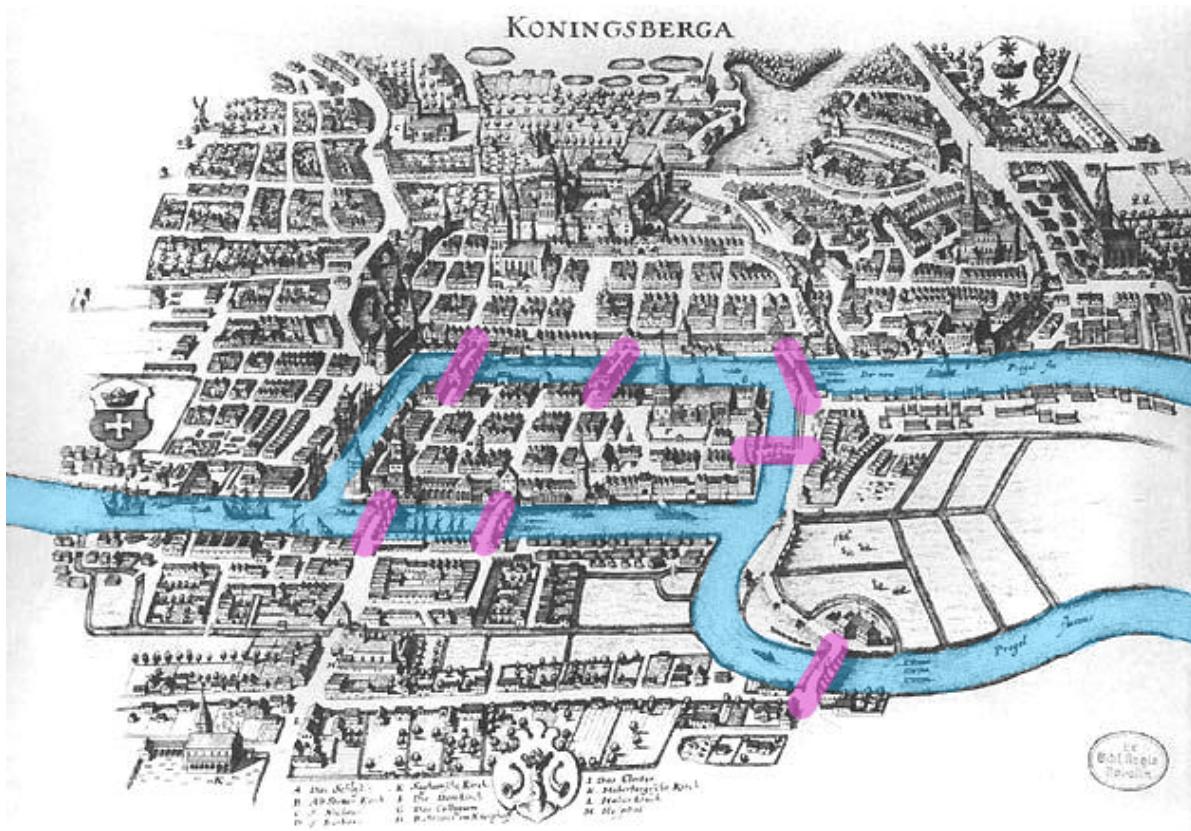


2. Determine if there exists an Euler path or Euler circuit for the graph with four vertices as shown below. (Note that there is no vertex at the middle crossing between the two diagonal edges.)

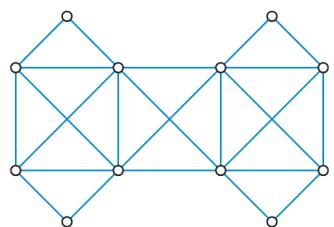


3. A famous challenge in Königsberg (now Kaliningrad, Russia) was to walk across each of the seven bridges of the city exactly once, as shown below. How can we accomplish this? Or is this task

impossible?



4. Find an Euler circuit for the graph shown:



5. Find an Euler path for the graph shown:

