Handout: Königsberg Construction

Try making **little changes** to the Königsberg problem and see what happens:

1. What happens if you ADD ONE bridge?
   Can you now find a path that touches all bridges?
   If so, does it matter where you start?

2. Try (1) but REMOVE ONE bridge.

3. Try (1) but ADD ONE bridge, AND REMOVE ANOTHER bridge.

4. Try (1) but ADD TWO bridges.

5. Try (1) but REMOVE TWO bridges.

Look at the **simplest case**:

6. What if there was just ONE bridge?

7. What if there were just TWO bridges?

8. List all the possibilities with TWO bridges?

9. In (8), for which possibilities can you cross both bridges?
   What do you notice about those possibilities?

10. Try (8) and (9) with THREE bridges!

Open Question:

11. Is there a way to tell if you can or can't cross all the bridges?