

This exercise continues the previous one in a review of some concepts related to permutations and graphs and an exploration of an interesting application of Eulerian graphs to permutations.

1. List the members of your group below. Underline your name.
2. Do the graphs  $Q_2$ ,  $Q_3$ , and  $Q_4$  from the previous exercise have Eulerian paths? For each graph, exhibit an Eulerian path or explain why no such path exists.

Recall that an Eulerian path in a digraph is a directed path that traverses each edge exactly once. A digraph with such a path is called Eulerian.

3. Prove or disprove: The graphs  $Q_n$  of of the previous exercise are Eulerian for all  $n > 1$ .

4. Explain the significance of the result of Question 3 to permutation generation. Provide an illustrative example.