Euler Circuits

An **Euler circuit** in a graph is a closed walk that passes through every edge exactly once. Note: in an Euler circuit you cannot use an edge more than once, but you can use vertices multiple times. In other words, Euler circuits don't have to be cycles.
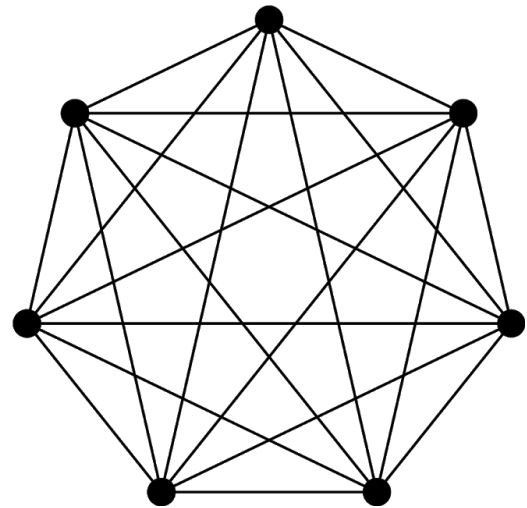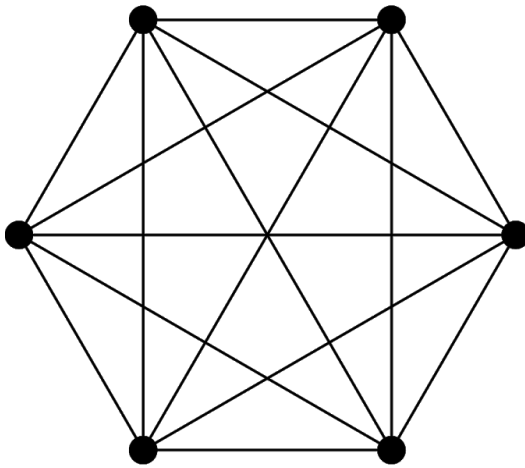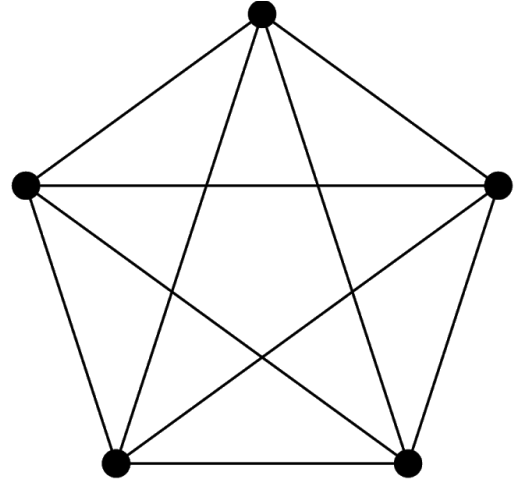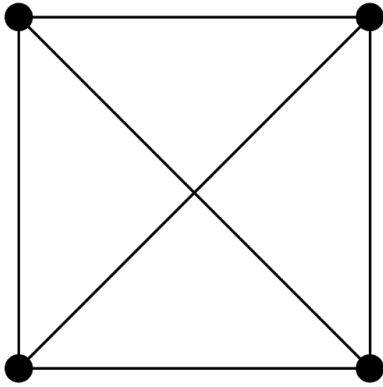
Task 1

For each graph, either find an Euler circuit or explain why no Euler circuit exists.
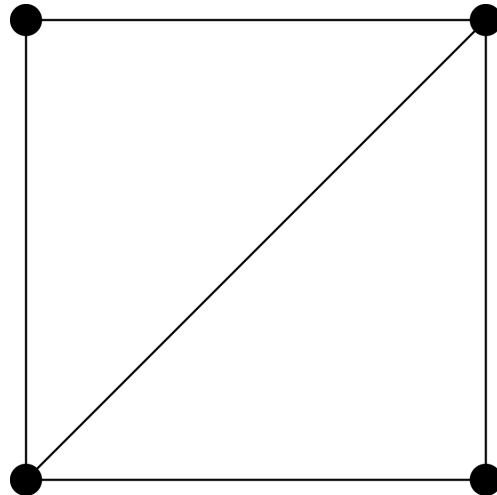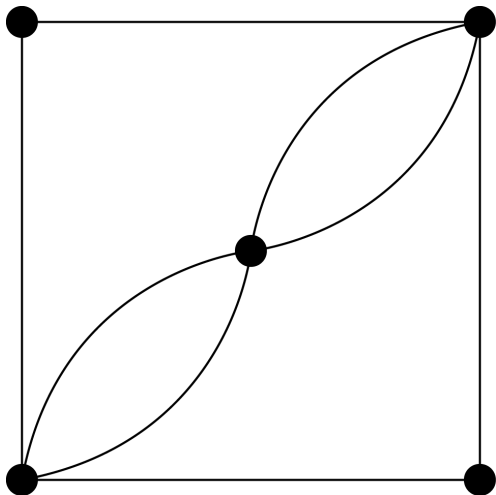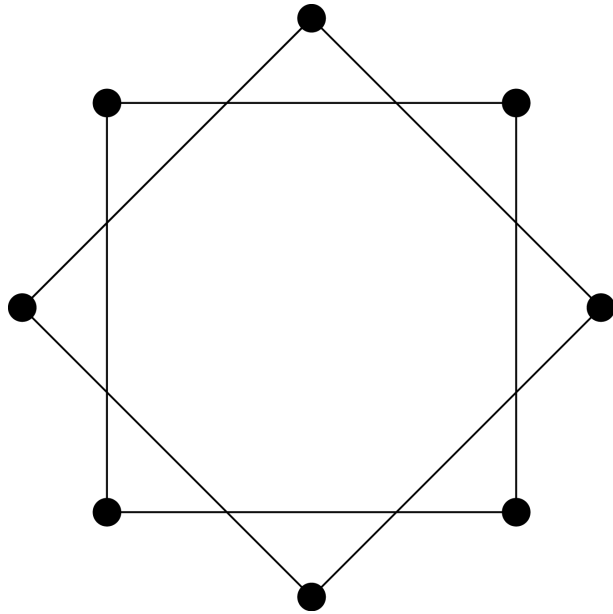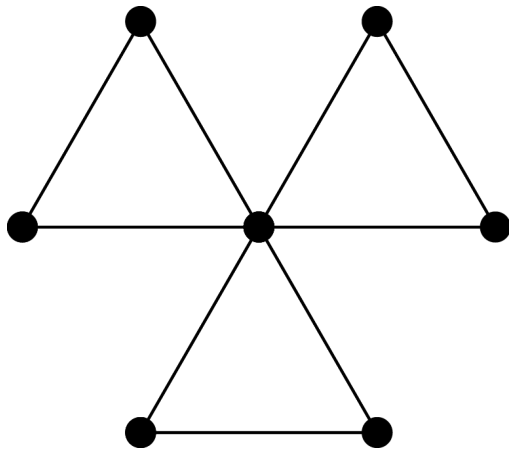
Task 2

- Using your work above as a guide, what are some characteristics or properties of a graph that guarantee an Euler circuit will **not** exist?
  - Property 1:

  - Property 2:

  - Property 3?

- If you have a graph that **doesn't** have any of the properties you listed above, then can you say for sure that the graph **does** have an Euler circuit? Why or why not?