This project asks you to practice with Euler and Hamiltonian circuits.

Give a connected graph with at least six vertices such that the graph

(a) has a single circuit that is *both* an Euler circuit and a Hamiltonian circuit. Give the circuit.

(b) has an Euler circuit and a Hamiltonian circuit, but the circuits have to be different. Give an example of each kind of circuit.

(c) has an Euler circuit but not a Hamiltonian circuit. Give an example of an Euler circuit and briefly explain why it can't have a Hamiltonian circuit.

(d) has a Hamiltonian circuit but not an Euler circuit. Give an example of a Hamiltonian circuit and briefly explain why it can't have an Euler circuit.

(e) has neither an Euler nor a Hamiltonian circuit. Briefly explain why it can't have either kind of circuit.