Euler Graphs

An Euler path starts at one vertex and traces all edges exactly once.
An Euler circuit is an Euler path that starts and ends at the same vertex.
A graph is called an Euler graph if it has an Euler circuit.

1. Trace the path or circuit. Tell whether each of these graphs has an Euler path, Euler circuit, or neither.

(a)  
(b)  
(c)  

(d)  
(e)  

2. Create a graph for each of the following categories:

<table>
<thead>
<tr>
<th>Euler Path but Not a Circuit</th>
<th>Euler Circuit</th>
<th>Neither</th>
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<tbody>
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3. What graph characteristics are necessary to have an Euler path?

4. What graph characteristics are necessary to have an Euler circuit?