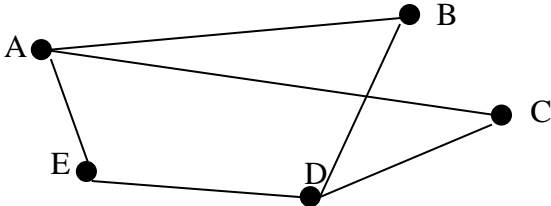


Elementary Division Solutions

<p>1. Graph Theory</p> 	<p>1. As shown as long as it's the same vertices and edges</p>
<p>2. Graph Theory</p> <p>After drawing the graph, there is an edge from every vertex to every other vertex, 10 in all which makes it a complete graph.</p>	<p>2. complete</p>
<p>3. Graph Theory</p> <p>There are only 2 cycles in this graph, both of which must include all 5 vertices. Therefore, they are any cyclical sequence of ABDECA (e.g. DECABD) and CEDBAC (e.g. DBACED). In undirected graph, there is always an even number of cycles because you can go both ways.</p>	<p>3. 2</p>
<p>4. Graph Theory</p> <p>A simple path has no vertex repeated. There are no simple paths of length 1. Paths of length 2 include QPS and QTS. Paths of length 3 include QPTS, QTRS, and QTPS. Paths of length 4 include only QPTRS. With 5 vertices, there are no paths of length more than 4.</p>	<p>4. QPS, QTS, QPTS, QTRS, QTPS, QPTRS</p>
<p>5. Graph Theory</p> <p>The roads are the edges of the graph and the family names are the nodes. It is traversable if you can cross each road once and only once. There are 4 odd vertices (Atkins, Field, Clark, and Brown). Therefore, it is not traversable.</p>	<p>5. NOT POSSIBLE</p>