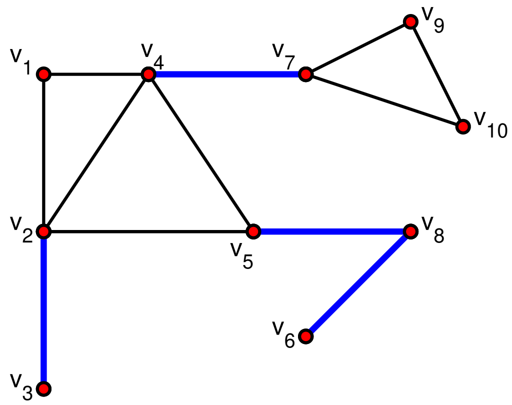
Solutions for Quiz #14

November 25, 2003

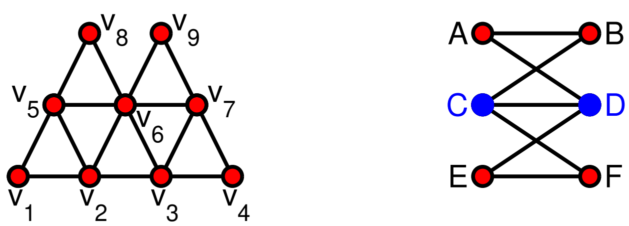
1. { 4 points } **An edge whose removal disconnects the graph of which it is a part is called a** *bridge*. **Find all bridges for the following graph.**

The bridges are: $\{v_2, v_3\}$, $\{v_4, v_7\}$, $\{v_5, v_8\}$, and $\{v_6, v_8\}$.



2. { 6 points } **Determine which of the graphs below have Euler circuits. Find Euler circuits for those graphs that have them.**

The following is an Euler circuit for the first graph: $v_1v_2v_3v_4v_7v_3v_6v_2v_5v_6v_7v_9v_8v_5v_1$.
The second graph has no Euler circuits, since the vertices C and D have odd degree (*it is 3 for both of them*).



Bonus. { 4 points } **Determine whether there is an Euler path from** u **to** w **. If there is, find such a path.**

The following is an Euler path for the graph: $uv_7v_8v_5v_2v_4v_3wv_2v_1v_6uv_5v_4w$.