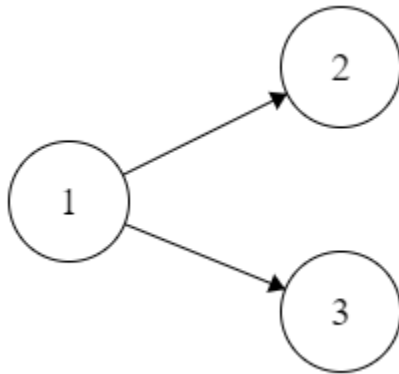Joseph Sylvia (CruzID: jasylvia)

MATH 115

Homework 2

Note: As the case was for the first assignment, the following graphs are undirected despite the arrows shown—this is a side effect of using a finite state machine designer.

0.9

Start at 2. Move to 1, and remove the edge just traversed. We now have $\sigma = (1)$ and have no more edges to create Prüfer symbols from. 1 has degree 2, and it has $k - 1$ occurrences of symbols, so we have verified that 1 will appear only once as a symbol.

Start at 2. Move to 1, and remove the edge just traversed. Repeat this once more from vertex 3. Since 1 has degree 3, we have verified that 1 will appear twice as a symbol, as $\sigma = (1, 1)$.
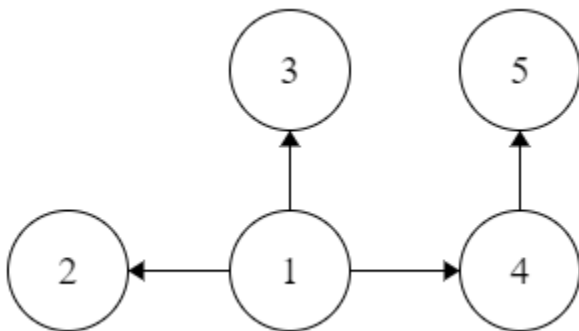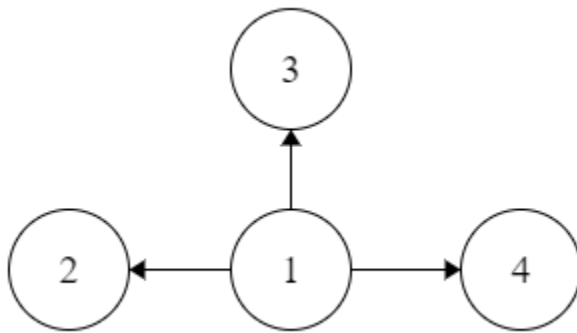
Start at 2. Move to 1, and remove the edge just traversed. Repeat from vertex 3 to 1, and then from 1 to 4. 1 has degree 3, and 4 has degree 2, so each vertex shows up 2 times and 1 time, respectively, as $\sigma = (1, 1, 4)$.

Start at 3. Move to 1, and remove the edge just traversed. Repeat from 4 to 1, and then from 1 to 2. Since vertex 1 has degree 3 and vertex 2 has degree 2, 1 appears twice and 2 appears once in the symbol $\sigma = (1, 1, 2)$.