Preliminary problems. These problems should be completed before discussion on Thursday.

(P1) Consider the cycle graph C_4 with the vertices are labeled $1, 2, 3, 4$ clockwise. Find the number of ways to properly color C_4 using the colors red, green, and blue. How many of the colorings use **exactly** those 3 colors (that is, every color appears at least once)?

(P2) Find a 2-coloring of the graph depicted below. Redraw the graph with vertices of one color on the left and the remaining vertices on the right (how we usually draw bipartite graphs).