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

(P1) 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).
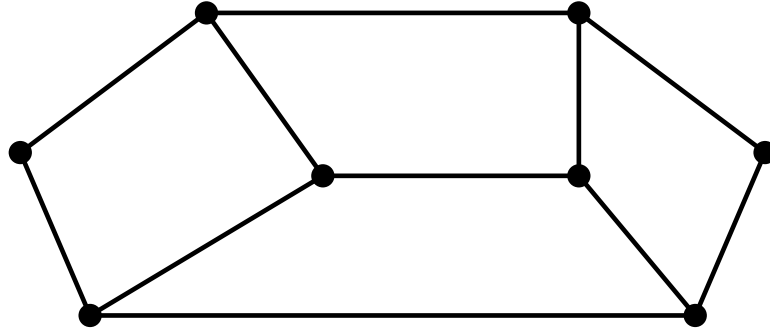
(P2) Consider the cycle graph C_4 with the vertices labeled $1, 2, 3, 4$ clockwise. Find the number of ways to properly color C_4 using the colors red, green, and blue. How many of the colorings use **exactly** those 3 colors (that is, every color appears at least once)?