9. The complexity class DP is defined as follows:

\[ \text{DP} = \{ L_1 \cap L_2 : L_1 \in \text{NP} \text{ and } L_2 \in \text{coNP} \} . \]

Prove that the language \( \text{EXACT-IND-SET} = \{ \langle G, k \rangle : G \text{ is a graph with } \alpha(G) = k \} \) is DP-complete under polynomial time reductions. Here, \( \alpha(G) \) is the independence number of \( G \), defined as the size of a maximum independent set of \( G \). \[2 \text{ points}\]

10. Locate DP within the polynomial hierarchy, i.e., determine its relation to the classes \( \Sigma^p_i \) and \( \Pi^p_i \), as best as you can. See if you can say anything more by assuming that the hierarchy does not collapse. \[2 \text{ points}\]