1: Determine, with proof, the edge-chromatic number of the Petersen graph.

2: Show that no regular, self-complementary graph has edge-chromatic number equal to its maximum degree.

3: Show that no regular graph with a cut vertex has edge-chromatic number equal to its maximum degree.

4, Diestel 7.4: Determine the value of $\text{ex}(n, K_{1,r})$ for all $r, n \in \mathbb{N}$.