PROBLEM STATEMENT:

A propeller airplane weighs 45000 N and has a wing area of 28 m^2. The drag polar is given by $C_D = 0.021 + 0.045C_L^2$, and the maximum lift coefficient is 1.5. The power developed by the engine is 900 kW with a propulsive efficiency of 0.82. The structural limit load factor is 3.0. Determine the performance characteristics for (a) fastest sustained rate of turn, (b) sharpest sustained rate of turn, and (c) maximum load factor turn.

Note: Use graphical approach to solve this question. Consider missing data with a proper justification. Matlab codes of two person should not be same. If it is found that two codes are same, both the students will get zero marks without any argument.