

F7. The profile drag of a particular wing is assumed to be some given constant over the expected range of operating C_L 's.

$$c_d \simeq \text{constant}$$

For an elliptically-loaded wing of some aspect ratio $AR \dots$

a) Determine the operating C_L at which the lift/drag ratio C_L/C_D is maximized. This is the desirable operating point for maximum range. Determine how the C_D at this operating point compares to c_d .

b) Determine the operating C_L at which the "power coefficient" $C_L^{3/2}/C_D$ is maximized. This is the desirable operating point for maximum endurance. Determine how the C_D at this operating point compares to c_d .