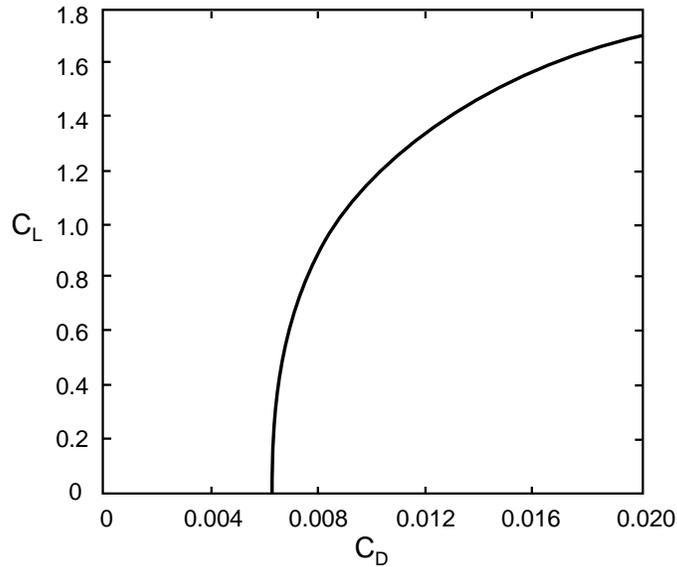


**Problem 292C**

An airplane is equipped with wings whose cross-section has the following lift/drag characteristic in planar flow, in other words at infinite aspect ratio:



Also, the aspect ratio of the wings is  $A_R = 10$ , the corrections for the finite aspect aspect ratio are  $\Delta C_L = -C_L/(1 + A_R/2)$  and  $\Delta C_D = C_L^2/\pi A_R$  and the drag on the rest of the airplane is 4 times the wing drag.

The airplane is gliding and therefore continuously loses altitude when flying through still air. The inclination of this trajectory to the horizontal is called the *glide angle*. Find the *minimum* glide angle for this airplane using the data given above. (Some iteration using trial and error is required to answer this).