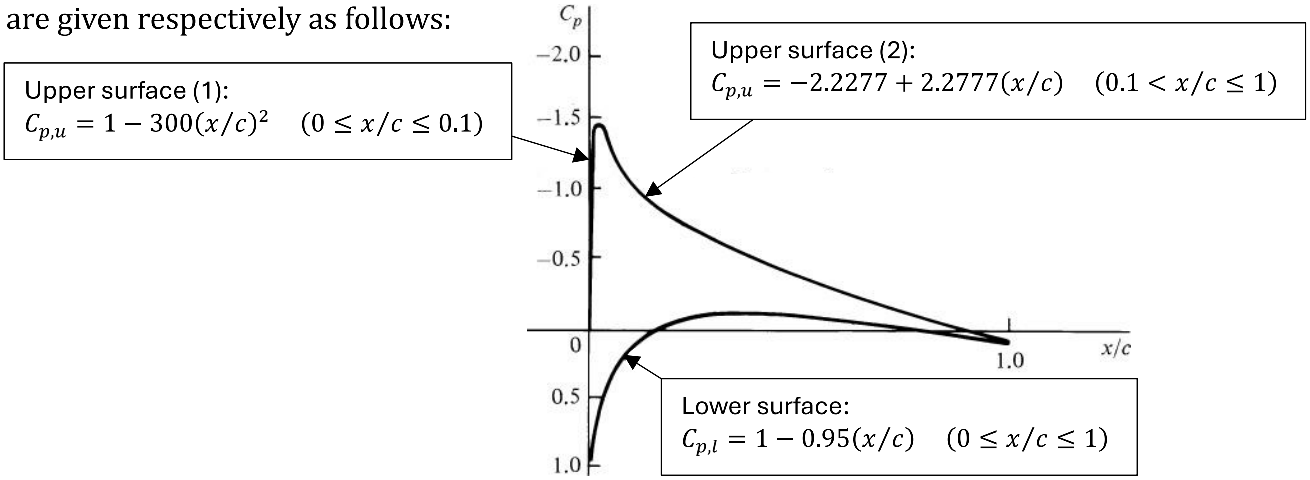
(EXAMPLE) [C-1-5]

Consider an airfoil with chord length c and the running distance x measured along the chord line. The leading edge is located at $x/c = 0$ and the trailing edge at $x/c = 1$. Calculate the lift coefficient for this airfoil. The pressure coefficient variations over the upper and lower surfaces are given respectively as follows:



Upper surface (1):
$C_{p,u} = 1 - 300(x/c)^2 \quad (0 \le x/c \le 0.1)$

Upper surface (2):
$C_{p,u} = -2.2277 + 2.2777(x/c) \quad (0.1 < x/c \le 1)$

Lower surface:
$C_{p,l} = 1 - 0.95(x/c) \quad (0 \le x/c \le 1)$