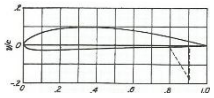
(EXAMPLE) [C-1-3]

Once again, can airplane fly upside-down?
To answer this question, we will use the same wind tunnel test as in Class Example Problem C-1-2. Consider NACA 4412 airfoil.

NACA 4412 

(a) Determine the lift coefficient at an angle of attack of 10 degrees.
(b) Now imagine the same airfoil turned upside-down, but at the same 10 degrees angle of attack as part (a). Determine its lift coefficient.
(c) At what angle of attack must the upside-down airfoil be set to generate the same lift as that when it is right-side-up at a 10 degrees angle of attack?