Special Problem 9-1

In this problem, we are going to learn about boundary layers on a flat plate.

(a) Following Example 9.4-1 on pp. 378-380 in Deen, derive Blasius' equation (Eq. 9.4-9 and 9.4-10).

(b) Using the numerical solution of (a) that is posted on the course website, derive Eq. 9.4-15,

$$C_D = \frac{1.328}{\text{Re}^{1/2}} \tag{1}$$

for the drag coefficient of the flat plate.