P5.1

$$-\frac{1}{2\pi}\int_0^c \frac{\gamma(x_0)\,dx_0}{(x-x_0)} = Q_\infty\left(\frac{dz_c}{dx} - \alpha\right)$$

$$\left.\begin{aligned}\Delta C_p(x) &= \frac{2\gamma(x)}{Q_\infty}\\ \Delta C_p(x) &= \underbrace{\Delta C_p}_{\text{Constante}}\end{aligned}\right\} \Rightarrow \quad \gamma = \frac{\Delta C_p\, Q_\infty}{2}\,, \quad \alpha = 0$$

$$\frac{dz_c}{dx} = -\frac{\Delta C_p}{4\pi}\int_0^c \frac{dx_0}{(x-x_0)} = \frac{\Delta C_p}{4\pi}\int_0^c \frac{dx_0}{(x_0-x)}$$

$$\frac{dz_c}{dx} = \frac{\Delta C_p}{4\pi}\ln\left(\frac{c-x}{x}\right)$$

$$C_L = 2\pi(\alpha - \alpha_{L0})$$