

Numerical answers

1. (b)(i) $\bar{\rho} = 1.5 t/l$

(b)(ii) $\varepsilon_1 = \frac{\Sigma_1}{E_1}$ where $E_1 = \left(\frac{2}{3}\right)^4 E_s \bar{\rho}^3$

2. (a)

$$\begin{aligned} n &= 0 & x &\geq h \\ n &= 1 - \exp\left(\frac{k_1(x-h)}{v}\right) & h - x_0 &\leq x \leq h \\ n &= 1 - \exp\left(\frac{k_1 x_0}{v}\right) & 0 &\leq x \leq h - x_0 \\ n &= \left[1 - \exp\left(\frac{k_1 x_0}{v}\right)\right] \exp\left(\frac{k_2 x}{v}\right) & x &\leq 0 \end{aligned}$$