



Same material $\Rightarrow \sigma$ & n_e are the same

a.) Conservation of Current:

$$\underline{I_1 = I_2 = \text{const.} = I = 2.0 \text{ A}}$$

So:

b.) $I_1 = I_2$

$$J_1 A_1 = J_2 A_2$$

and, $J = n_e e v_d$

So, $n_e e v_{d1} A_1 = n_e e v_{d2} A_2$

So $v_{d2} = v_{d1} \left(\frac{A_1}{A_2} \right) = v_{d1} \left(\frac{d_1}{d_2} \right)^2$

$$\underline{v_{d2} = 5 \times 10^{-5} \text{ m/s}}$$

