

Problema 2

$$a) v_{x0} = \sqrt{\frac{2eV}{m}} = 2.3 \times 10^7 \text{ m/s}$$

$$b) t_1 = \frac{l_1}{v_{x0}} = 2.17 \times 10^{-9} \text{ s}$$

$$c) t_2 = \frac{l_2}{v_{x0}} = 4.35 \times 10^{-9} \text{ s}$$

$$d) \Delta y_p = \frac{1}{2} a t_1^2; a = \frac{eE}{m} = \frac{eV_p}{md}$$

$$\Delta y_f = \Delta y - \Delta y_p = v_{yf} t_2; v_{yf} = a t_1 = \frac{eV_p}{md} t_1$$

$$\Delta y = \Delta y_p + \Delta y_f = \frac{1}{2} \frac{eV_p}{md} t_1^2 + \frac{eV_p}{md} t_1 t_2$$

$$V_p = \frac{\Delta y}{\frac{e t_1}{md} \frac{1}{2} t_1 + t_2} = 724 \text{ V}$$

$$e) E = \frac{V_p}{d} = 24.13 \text{ kV/m} = 24.13 \text{ kN/C}$$

$$f) \Delta y_p = \frac{1}{2} \frac{eV_p}{md} t_1^2 = 10^{-2} \text{ m} = 1 \text{ cm}$$

$$g) \alpha = \arctan \frac{v_{yf}}{v_{x0}} = \arctan 0.4 = 0.38 \text{ rad} = 21.8^\circ$$

$$v_{yf} = \frac{eV_p}{md} t_1 = 9.2 \times 10^6 \text{ m/s}$$