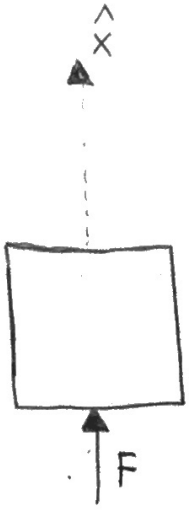
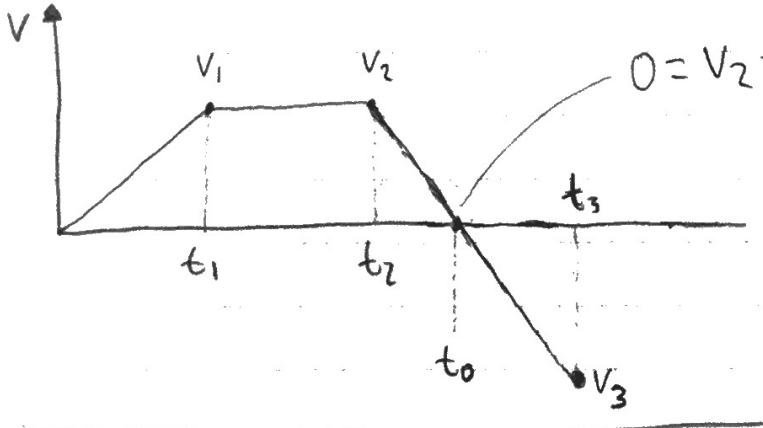


$$a_1 = \frac{F_1}{m}$$

$$a_2 = \frac{-F_2}{m}$$

$$x_f = x_0 + v_0 \Delta t + \frac{1}{2} a (\Delta t)^2$$



$$0 = v_2 + a_2 (\Delta t_0)$$

$$\Delta t_0 = -\frac{v_2}{a_2}$$

$$t_0 = t_2 + \Delta t_0$$

$$v_1 = a_1 t_1$$

$$v_2 = v_1$$

$$v_3 = v_2 + a_2 (t_3 - t_2)$$

$$x_1 = \frac{1}{2} v_1 t_1$$

$$x_2 = x_1 + v_2 (t_2 - t_1)$$

$$x_3 = x_2 + \frac{1}{2} v_2 (t_0 - t_2) + \frac{1}{2} v_3 (t_3 - t_0)$$