

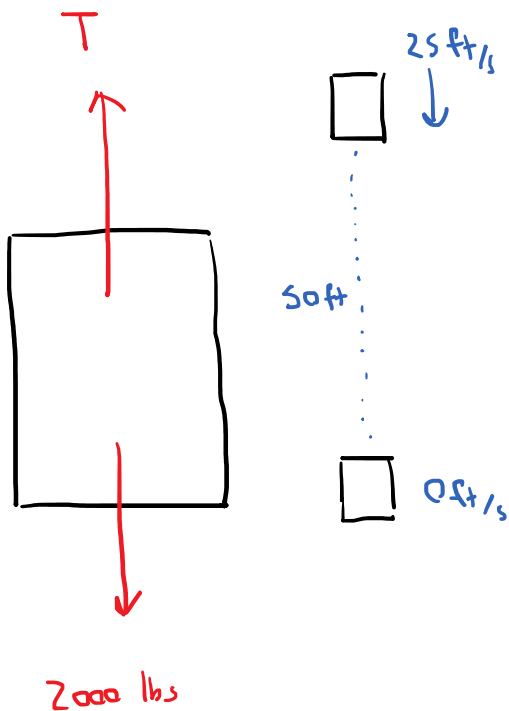
Problem 4

Force Method One Dimension (Practice Problem)

- An 2000lb elevator decelerates a from a speed of 25 ft/s downward to a stop in a distance of 50 ft.
- Determine
 - The rate of deceleration (assuming a constant rate)
 - The tension in the cables supporting the elevator during this period.



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$$V^2 = V_0^2 + 2 a \Delta s$$

$$0 = (-25)^2 + 2(a)(-50)$$

$$\boxed{a = 6.25 \text{ ft/s}^2}$$

$$\sum F_y = m a_y$$

$$T - 2000 = \frac{2000}{32.2} (6.25)$$

$$\boxed{T = 2388.2 \text{ lbs}}$$