

§10-2 Multiple Masses (p476)

Assumptions that we make when dealing with multiple masses that are connected by a string or rope:

- the string or rope has negligible mass in comparison to the masses that it connects.
- the string or rope does not stretch
- the tension is the same throughout the string.
- if the string passes over a pulley, then the pulley just changes the direction of the tension
- the pulley is frictionless.

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$$m = 2245 \text{ kg}$$

$$\vec{a} = 0.55 \text{ m/s}^2 \text{ [up]}$$

$$T = ?$$

$$\vec{F}_{\text{net}} = m\vec{a}$$

$$T - F_g = ma$$

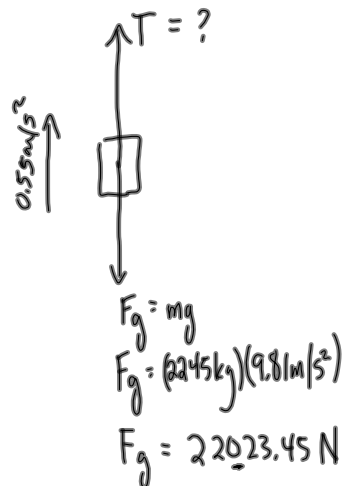
$$T = ma + F_g$$

$$T = (2245 \text{ kg})(0.55 \text{ m/s}^2) + 22023.45 \text{ N}$$

$$T = 1234.75 \text{ N} + 22023.45 \text{ N}$$

$$T = 23258.2 \text{ N}$$

$$T = 2.33 \times 10^4 \text{ N}$$



TO DO:

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