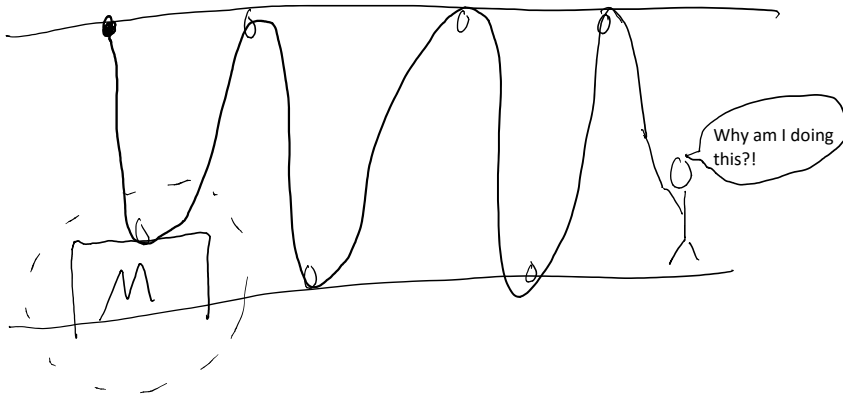
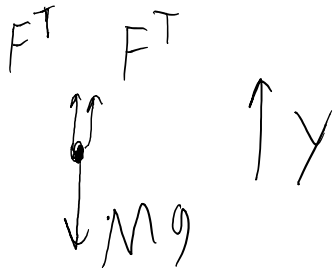


What is the mechanical advantage of the system below?



To hold the block in the air with help



$$\Sigma F^y = M a_y$$

$$F^T + F^T - Mg = M a_y \overset{0}{\rightarrow}$$

$$2 F^T - Mg = 0$$

$$F^T = \frac{Mg}{2}$$

To hold the block in the air without any help



$$\Sigma F_y = M a_y$$

$$F^{APP} - Mg = M a_y \overset{0}{\rightarrow}$$

$$F^{APP} = Mg$$

$$MA = \frac{F_{without}}{F_{with}} = \frac{Mg}{\frac{Mg}{2}} = 2$$