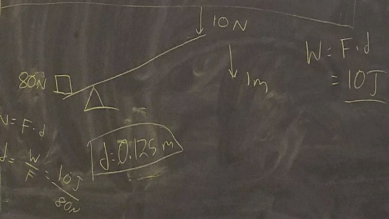


$$\text{Force} \times \text{Distance}_{\text{input}} = \text{Force} \times \text{Distance}_{\text{output}}$$

$$\text{Mechanical advantage} = \frac{\text{Force}_{\text{output}}}{\text{Force}_{\text{input}}}$$

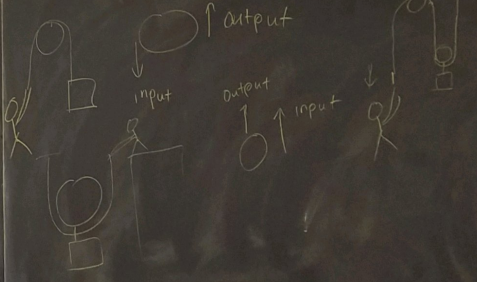


Efficiency

$$\text{Efficiency} = \frac{\text{Work}_{\text{output}}}{\text{energy}_{\text{input}}}$$

No machine is 100% efficient
 Waste energy is mostly in the form of heat

Pulley & block & tackle systems.



Block & tackle system
 Mechanical advantage of 2

