

Classwork 2/8

- 1) A 1.0×10^3 kg elevator carries a maximum load of 800.0 kg. What minimum power must the motor deliver to lift the fully loaded elevator at constant speed of $3.00 \frac{m}{s}$?
- 2) How long does it take a 19 kW steam engine to do 6.8×10^7 J of work?
- 3) A rain cloud contains 2.66×10^7 kg of water vapor. How long would it take for a 2.00 kW pump to raise the same amount of water to the cloud's altitude?

$$P = \frac{W}{t}$$

$$\text{Power} = \frac{\text{Work}}{\text{time}}$$

$$1.0 \text{ km} = 1000 \text{ m}$$

$$1.0 \text{ kW} = 1000 \text{ W}$$

$$P = F \cdot V$$

$$\text{Power} = (\text{Force}) (\text{velocity})$$

$$\text{Weight} = mg$$

$$g = 9.8 \frac{m}{s^2}$$