

Power

- Power is an amount of work done in unit time:

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

Remember that *Work = Force * Displacement*

Unit of power is called Watt, $1W=1J/s$

- You can also use Power to characterize the rate with which heat is produced:

$$P = \frac{\Delta Q}{\Delta t}$$

Homework

Problem 1

Find the power of a pump motor that can lift 1 liter (1kg) of water to the height $h=10\text{m}$, in 1 s.

Problem 2

What should be a power of an electric heater that can bring 10 liter (10 kg) of water to the boiling, starting at 20°C , in 3 minutes. Specific heat of water is $4200 \frac{\text{J}}{\text{kg} \cdot ^\circ\text{C}}$