

$$\frac{PV}{T} = \text{vakio}$$

$$PV = nRT$$

$$n = \frac{m}{M}$$

$$= \frac{200 \text{ g}}{18,016 \text{ g/mol}}$$

$$\approx 11,101 \text{ mol}$$

MAOL kemia!

$$M(\text{H}_2\text{O}) = (2 \cdot 1,008 + 16) \text{ g/mol}$$

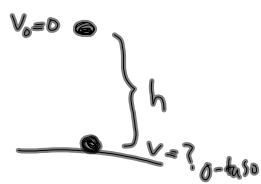
esim. vettä 200 g

jääste höyryksi

-20°C → 0°C → sulaa → 0°C → 100°C → höyrystyä

$$Q_1 = c_j m \Delta T \quad Q_2 = \lambda m \quad Q_3 = c_v m \Delta T \quad Q_4 = r m$$

$$Q = c \Delta T$$



$$E_p^a + E_k^a = E_p^l + E_k^l$$

$$0 = 0$$

$$mgh = \frac{1}{2} m v^2 \quad | :m$$

$$gh = \frac{1}{2} v^2 \quad | \cdot 2$$

$$2gh = v^2$$

$$v = \sqrt{2gh}$$

Teho $P = \frac{W}{t} = \frac{F s}{t} = F v$

esim. nostotehossa $F = G = mg$

$$\frac{W_{\text{anto}}}{W_{\text{otto}}} = \eta = \frac{P_{\text{anto}}}{P_{\text{otto}}}$$

esim. sähköteho

20%

80%

kone $\eta = 0,8$

esim. $0,8 = \frac{P_1}{P_0} \rightarrow P_0 = \frac{P_1}{0,8}$

$$1 \text{ m}^3 = 1000 \text{ l}$$

Metallin tiheys 8 kg/dm^3

$$V = 1 \text{ m}^3 = 1000 \text{ l} = 1000 \text{ dm}^3$$

$$\rightarrow m = 8 \cdot 1000 \text{ kg} = 8 \text{ t}$$

Tehon yksiköt

$$\text{Watti} = \frac{\text{joule}}{\text{s}}$$

kWh on energian yksikö

$$11 \text{ kWh} = 11 \cdot 1000 \frac{\text{J}}{\text{s}} \cdot 3600 \text{ s} = 39600000 \text{ J} = 3,6 \text{ MJ}$$

energia = 11 kWh = 0,011 kWh