

TRABAJO FUERZA DESPLAZAMIENTO

$$W = F \cdot \Delta x$$

$$W = 10 \cdot 50 = 500 \text{ J}$$

$$Q = m \cdot C_p \cdot \Delta T = 15\,000 \cdot 0.450 \cdot 70 = 472\,500 \text{ J}$$

$$m = 15 \text{ kg} = 15\,000 \text{ g}$$

$$C_p = 0.450 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$$

$$\cancel{\text{g}} \cdot \frac{\cancel{\text{J}}}{\cancel{\text{g}} \cdot ^\circ\text{C}} \cdot \cancel{\text{J}}$$

$$\Delta T = 90 - 20 = 70^\circ\text{C}$$

$$E_M = m \cdot g \cdot h + \frac{1}{2} m \cdot v^2 = \cancel{m \cdot g \cdot h} + \frac{1}{2} m \cdot \cancel{v^2}$$

$$\cancel{m} \cdot g \cdot h = \frac{1}{2} \cancel{m} \cdot 200^2$$

$$g \cdot h = \frac{1}{2} v^2$$

200 m 

$$E_M = m \cdot g \cdot h + \frac{1}{2} m \cdot v^2 = \cancel{m \cdot g \cdot h} + \frac{1}{2} m \cdot 200^2$$

$$g \cdot h = 0.5 \cdot 200^2$$

$$h = \frac{0.5 \cdot 200^2}{g} = 2040.82 \text{ m}$$

100 m $\Delta E_p = m \cdot g \cdot h = 50 \cdot 9.8 \cdot 100 = 49\,000 \text{ J}$

$$W = \vec{F} \cdot \vec{\Delta x} = 50 \cdot 9.8 \cdot 100 = 49\,000 \text{ J}$$

$\underbrace{\hspace{10em}}_{\vec{F}} \quad \underbrace{\hspace{10em}}_{\vec{\Delta x}}$

50 kg + 0 m

$$E_c = \frac{1}{2} m \cdot v^2 = 0.5 \cdot 65 \cdot 10^2 = 3250 \text{ J}$$

$$q \cdot h = \frac{1}{2} v^2$$

$$9.8 \cdot 70 = 0.5 \cdot v^2$$

$$686 = 0.5 \cdot v^2$$

$$\frac{686}{0.5} = v^2$$

$$1372 = v^2$$

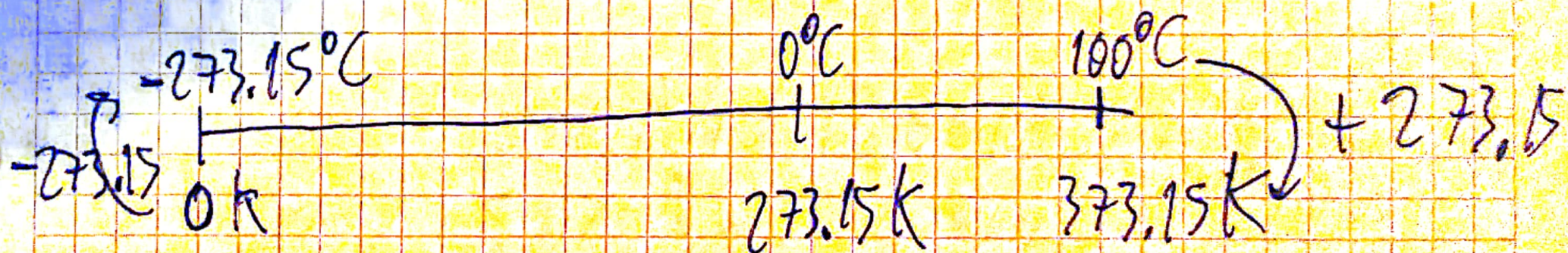
$$\sqrt{1372} = v$$

$$v = 37.04 \text{ m/s}$$

$$Q = m \cdot C_L = 0.75 \cdot 205 = 153.75 \text{ kJ}$$

$$m = 750 \text{ g} = 0.75 \text{ kg}$$

$$C_L = 205 \frac{\text{kJ}}{\text{kg}}$$



$$150 \text{ K} - 273.15 = -123.15^{\circ}\text{C}$$