

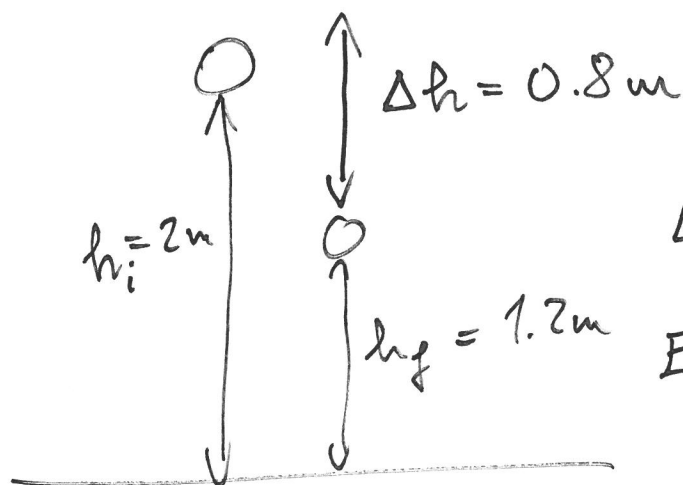
$$F = m \cdot g = 12 \text{ kg} \cdot 9,81 \frac{\text{m}}{\text{s}^2} = \underline{\underline{117,72 \text{ N}}}$$

$$W = F \cdot s = 117,72 \text{ N} \times 8 \text{ m} = \underline{\underline{941,76 \text{ J}}}$$

$$P = \frac{W}{t} = \frac{941,76 \text{ J}}{16 \text{ s}} = \underline{\underline{58,86 \text{ W}}}$$

$$v = \frac{s}{t} \rightarrow t = \frac{s}{v} = \frac{8 \text{ m}}{0,5 \frac{\text{m}}{\text{s}}} = \underline{\underline{16 \text{ s}}}$$

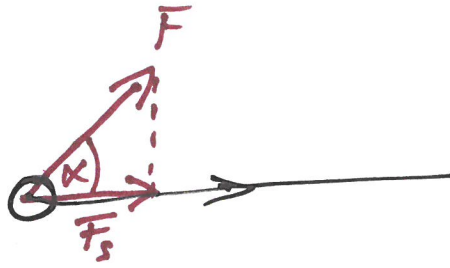
$$W_{\text{total}} = W \cdot 480 = \underline{\underline{4522 \text{ J}}} = \underline{\underline{107,8 \text{ kcal}}} \\ \div 4,19 \frac{\text{J}}{\text{kcal}}$$



$$E = m \cdot g \cdot \Delta h$$

$$E = 0,8 \text{ kg} \cdot 9,81 \frac{\text{m}}{\text{s}^2} \cdot 0,8 \text{ m} =$$

$$\underline{\underline{6,3 \text{ J}}}$$



$$F_s = F \cdot \cos \alpha$$

$$F = m \cdot a = m \cdot \frac{\Delta v}{\Delta t} = 1200 \text{ kg} \cdot \frac{27.8 \frac{\text{m}}{\text{s}}}{12 \text{ s}}$$

$$F \approx \underline{\underline{2778 \text{ N}}}$$

$$s = \frac{1}{2} \cdot a \cdot t^2 = \frac{1}{2} \cdot \left( \frac{27.8 \frac{\text{m}}{\text{s}}}{12 \text{ s}} \right) \cdot 12 \text{ s}^2 = \underline{\underline{166.8 \text{ m}}}$$

$$W = F \cdot s = 2778 \text{ N} \times 166.8 \text{ m} = \underline{\underline{463 \text{ kJ}}}$$

$$P = \frac{W}{t} = \frac{463 \text{ kJ}}{12 \text{ s}} \approx \underline{\underline{38.6 \text{ kW}}}$$

may 4

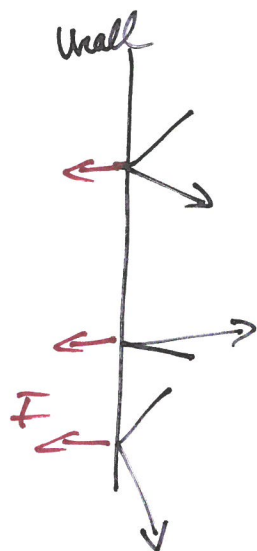
$$E = 9.11 \times 10^{-31} \text{ kg} \cdot \left(3 \cdot 10^8 \frac{\text{m}}{\text{s}}\right)^2 = 8.2 \cdot 10^{-14} \text{ J}$$

$$\downarrow \div 1.6 \times 10^{-19} \frac{\text{J}}{\text{e}}$$

$$\underline{512 \text{ eV}}$$

$$\boxed{511 \text{ eV}}$$

$$E = \frac{1}{2} \cdot k \cdot s^2 = \frac{1}{2} \cdot 3 \cdot 10^5 \frac{\text{N}}{\text{m}} \cdot (2 \cdot 10^{-3} \text{ m})^2 = \underline{\underline{0.6 \text{ J}}}$$



$$p = \frac{F}{A} = \frac{100 \text{ N}}{1 \text{ mm}^2} = \frac{100 \text{ N}}{10^{-6} \text{ m}^2} = \frac{10^2}{10^{-6}} = \underline{\underline{10^8 \text{ Pa}}}$$

$$p = \frac{m \cdot g}{A} = \frac{70 \text{ kg} \cdot 9,81 \frac{\text{m}}{\text{s}^2}}{2 \cdot 10^{-2} \text{ m}^2} = \underline{\underline{34,3 \text{ kPa}}}$$

$$\rho = 19,3 \text{ g/cm}^3$$

$$\rho = \frac{m}{V} \rightarrow m = \rho \cdot V$$

$$m = 19,3 \text{ g/cm}^3 \cdot 1000 \text{ cm}^3 =$$

$$19300 \text{ g} = \underline{\underline{19,3 \text{ kg}}}$$

$$p = \frac{\rho \cdot V \cdot g}{A} = \frac{19300 \text{ kg/m}^3 \cdot 10^{-3} \text{ m}^3 \cdot 9,81 \frac{\text{m}}{\text{s}^2}}{10^{-2} \text{ m}^2}$$

$$1 \text{ g/cm}^3 = 1000 \text{ kg/m}^3$$