# Lösungen

**5.** $m = \frac{F}{a} = \frac{280\,\text{kN}}{0{,}15\,\text{m/s}^2} = 1\,866\,667\,\text{kg} = \underline{1\,866{,}67\,\text{t}}$

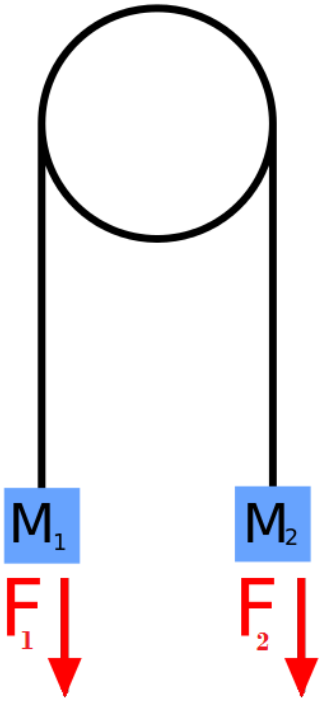
**8.** **a)** $F_b = (m_2 - m_1) \cdot g = (80\,\text{kg} - 50\,\text{kg}) \cdot 9{,}81\,\text{m/s}^2 = 294{,}3\,\text{N}$ $\quad a = \frac{F_b}{m_1 + m_2} = \frac{294{,}3\,\text{N}}{80\,\text{kg} + 50\text{kg}} = \underline{2{,}26\,\text{m/s}^2}$

**b)** $t = \frac{V}{a} = \frac{1\,\text{m/s}}{2{,}26\,\text{m/s}^2} = \underline{0{,}44\,\text{s}}$

**c)** $a = \frac{F_b}{m_1 + m_2} = \frac{294{,}3\,\text{N}}{180\,\text{kg} + 150\,\text{kg}} = 0{,}89\,\text{m/s}^2$ $\qquad t = \frac{v}{a} = \frac{1\,\text{m/s}}{0{,}89\,\text{m/s}^2} = \underline{1{,}12\,\text{s}}$

**12.** $P = \frac{m \cdot g \cdot s}{t} = \frac{2\,000\,\text{kg} \cdot 9{,}81\,\text{m/s}^2 \cdot 6\,\text{m}}{5 \cdot 60\,\text{s}} = \underline{392{,}4\,\text{W}}$

# Lösung zur Atwoods Maschine

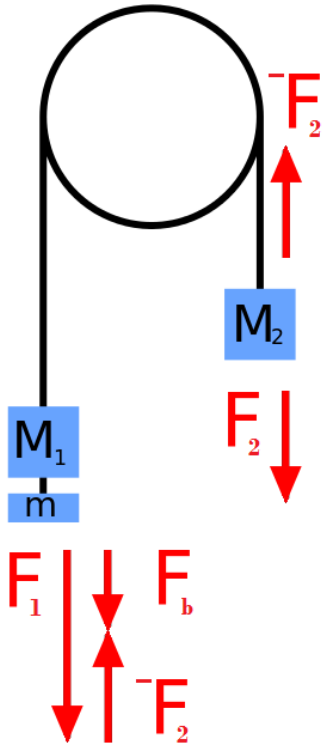



$$F_1 = F_2$$

$$F_1 - F_2 = 0$$

$$F_1 = M_1 * g$$

$$F_2 = M_2 * g$$


$-F_2$
$M_2$
$F_2$
$M_1$
m
$F_1$
$F_b$
$-F_2$