1) $F = m \cdot a$

$\Rightarrow 147\,N = 50\,kg \cdot a$

$0{,}294\,m/s^2 = a$

$s = \frac{1}{2} a \cdot t^2$

$V = a \cdot t$

$V = \frac{s}{t}$

$V = V_0 - V_a$

$0 = V_0 - V_a$

$0 = \cancel{V_0} - \cancel{a}$

$0 = 5{,}0\,m/s - 0{,}294\,m/s^2 \cdot t$

$-5{,}0\,m/s = -0{,}294\,m/s \cdot t$

$+17\,s = t$

$\Rightarrow s = \frac{1}{2} a \cdot t^2$

$s = 42{,}483\,m$

2. $F_g = m \cdot g \Rightarrow m = \frac{F_g}{g}$

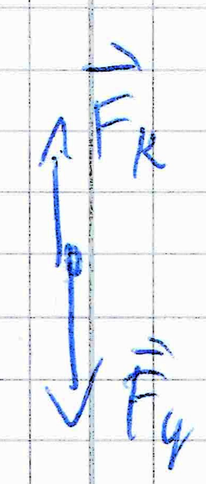
$m = \frac{1500\,N}{9{,}81\,m/s^2}$

$m \approx 152{,}9\,kg$

$m < 153\,kg$

3. $F_R = m \cdot g \Rightarrow 882{,}9\,N \doteq F_R = F_g \approx 0{,}88\,kN$

$v = konst = 0$ Summe Kräfte $= 0$



4. $m = 2300\,kg$ $\quad s = 200\,m \cdot t = 28{,}0\,s$

$F = m \cdot a$

$a = \frac{2s}{t^2} \Rightarrow F = m \cdot \frac{2s}{t^2}$

$F = 2300\,kg \cdot \frac{2 \cdot 200\,m}{(28{,}0\,s)^2}$

$F = 1773{,}47\ldots$

$F \approx 1{,}77\,kN$

$a = \frac{2s}{t^2}$ $\quad V = a \cdot t$

$V = \frac{2s \cdot \cancel{t}}{t \cdot \cancel{t}}$

$V = \frac{2s}{t}$

$V = 14{,}28\,m/s$

$V = 51{,}4\,km/h$

5. a) $F_g = m \cdot g \Rightarrow 500\,kg \cdot 9{,}81\,m/s^2$

$= 4{,}91\,kN$

b) $F_{ges} = F_g + F_{Bewl} \Rightarrow \cancel{F_g}\ F_{ges} = m(a_g + a_R)$

$F_{ges} = 500\,kg \cdot 9{,}81\,m/s^2 + 500\,kg \cdot 2{,}0\,m^2$

$F_g = 5{,}91\,kN$

c) $F = 5{,}91\,kN$ $\quad m = 500\,kg + 70\,kg$

$a = \frac{F}{m} - g$ $\quad a = \frac{5{,}91\,kN}{570\,kg} - 9{,}81\,m/s^2$

$a = 0{,}56\,m/s$

5d) $F_{ges} = m(g - a)$

$F_{ges} = 570\,kg(9{,}81\,m/s^2 - 1{,}2\,m/s^2)$

$F_{ges} = 4{,}91\,kN$