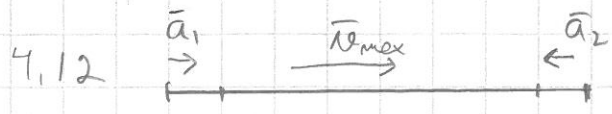
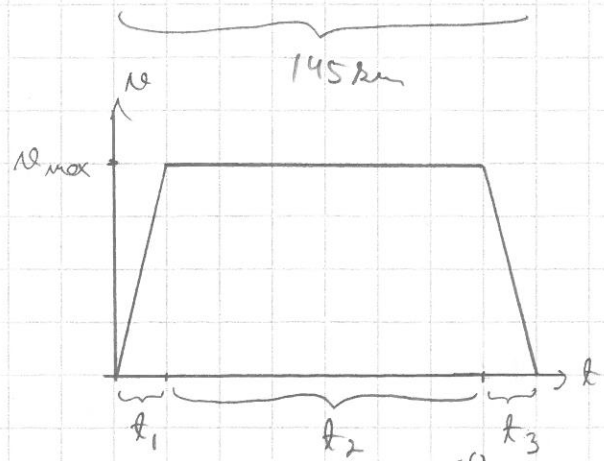


$$\begin{aligned}
 v &= v_0 + at \\
 s &= v_0 t + \frac{1}{2} at^2 \\
 v_m &= \frac{v_0 + v_e}{2} \\
 s &= v_m t
 \end{aligned}$$

$\left. \begin{array}{l} \text{a) vari\u00e1} \\ \text{pot\u00eancia} \end{array} \right\}$



$$\begin{aligned}
 a_1 &= 1,1 \frac{m}{s^2}, \quad v_{max} = 155 \frac{km}{h} \\
 a_2 &= -1,1 \frac{m}{s^2}
 \end{aligned}$$



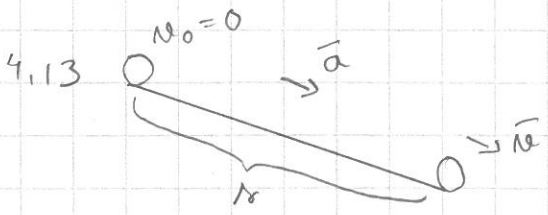
$$\begin{aligned}
 v &= v_0 + at \\
 \Rightarrow v_{max} &= 0 + a_1 t_1 \\
 \Rightarrow t_1 &= \frac{v_{max}}{a_1} = \frac{155 \frac{km}{h}}{1,1 \frac{m}{s^2}} \\
 &= 39,1414 s
 \end{aligned}$$

$$\begin{aligned}
 s_1 &= v_m \cdot t_1 = \frac{v_0 + v_{max}}{2} \cdot t_1 = \frac{v_{max}}{2} \cdot t_1 = \frac{155 \frac{km}}{3,6}}{2} \cdot 39,1414 s \\
 &= 842,627 m \\
 t_3 &= t_1 \text{ (simetric)} \\
 s_3 &= s_1 \text{ (simetric)}
 \end{aligned}$$

$$\begin{aligned}
 s_3 &= s_1 \text{ (simetric)} \\
 s_2 &= s - s_1 - s_3 = 145 km - 2 \cdot 0,842627 km \approx 143,315 km
 \end{aligned}$$

$$\begin{aligned}
 v_{max} &= \frac{s_2}{t_2} \quad | \cdot \frac{t_2}{v_{max}} \\
 \Rightarrow t_2 &= \frac{s_2}{v_{max}} = \frac{143,315 km}{155 \frac{km}{h}} \approx 0,924613 h
 \end{aligned}$$

$$\begin{aligned}
 \Rightarrow t &= t_1 + t_2 + t_3 = 2 \cdot \frac{39,1414}{60} \text{ min} + 0,924613 \cdot 60 \text{ min} \\
 &= 56,7815 \text{ min} \approx \underline{57 \text{ min}}
 \end{aligned}$$



$$\begin{aligned}
 s &= 1,70 m \\
 v_m &= 1,9 \frac{m}{s}
 \end{aligned}$$

a) $v_m = \frac{v_0 + v_e}{2} = \frac{v_e}{2} \quad | \cdot 2 \Rightarrow v_e = 2v_m = 2 \cdot 1,9 \frac{m}{s} = 3,8 \frac{m}{s}$

a) vari\u00e1vel (altera\u00e7\u00e3o de velocidade)

b) $v_m = \frac{s}{t} \quad | \cdot \frac{t}{v_m} \Rightarrow t = \frac{s}{v_m} = \frac{1,70 m}{1,9 \frac{m}{s}} = 0,894737 s$

$$a = \frac{\Delta v}{\Delta t} = \frac{v_e - v_0}{t} = \frac{3,8 \frac{m}{s} - 0 \frac{m}{s}}{0,894737 s} \approx 4,24706 \frac{m}{s^2} \approx \underline{4,2 \frac{m}{s^2}}$$