

PROBLEMA 1: CINEMÁTICA MOV. UNIFORME

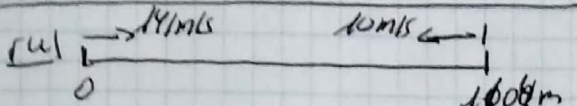
(m)

PERNA $12 \frac{m}{s}$

CONETO $10 \frac{m}{s}$ (t+10)

$$12t = 10(t+10)$$

$$2t = 100 \rightarrow t = 50s$$



$$x = 14t$$

$$x = 1000 - 10t$$

$$14t = 1000 - 10t \rightarrow 46s$$

(m) $12 \frac{m}{s}$ (t+60)

PERNA $a = 0,1 m/s^2$

$$12(t+60) = \frac{1}{2} 0,1 t^2$$

$$12t + 720 = 0,05 t^2$$

$$0,05 t^2 - 12t + 720 = 0$$

$$t = 289,706s$$

$$x = \frac{1}{2} 0,1 (289,706)^2 = 4196,478m$$

(m) $72 \frac{km}{h} = 20 \frac{m}{s}$ (t+300)

PERNA $10,8 \frac{km}{h} = 3 \frac{m}{s}$

$$2 \cdot (t+300) = 3t \rightarrow 2t + 600 = 3t$$

$$t = 600s \rightarrow x = 3 \cdot 600 = 1800m$$

(m) $20,16 \frac{km}{h} = 5,6 \frac{m}{s}$ (t+240)

PERNA $a = 0,1 m/s^2$

$$5,6(t+240) = \frac{1}{2} 0,1 t^2$$

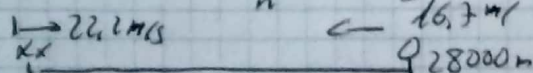
$$0,05 t^2 - 5,6t - 1344 = 0$$

$$t = 229,25s$$

$$x = \frac{1}{2} 0,1 (229,25)^2 = 2627,801m$$

(m) $v = 79,92 \frac{km}{h} = 22,2 \frac{m}{s}$

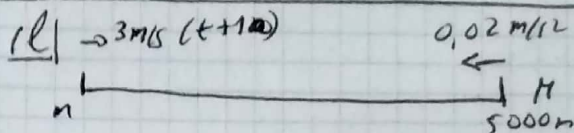
PERNA $v = 60,12 \frac{km}{h} = 16,7 \frac{m}{s}$



$$22,2t = 28000 - 16,7t$$

$$69,92t = 28000$$

$$t = 719,745s \rightarrow x = 15979,427m$$



$$3(t+10) = \frac{1}{2} 0,02 t^2$$

$$0,01 t^2 - 3t - 30 = 0$$

$$t = 309,687s$$

$$x = 3(309,687+10) = 959,061m$$

(m)

PERNA $v = 7 \frac{m}{s}$ (t+30) $T = 10m$

$$7(t+30) = 10t \rightarrow 7t + 210 = 10t$$

$$t = 70s \rightarrow x = 700m$$

(m)

PERNA $10m$ $11,88 \frac{km}{h} = 3,3 \frac{m}{s}$

$a = 1 m/s^2$

$$\frac{1}{2} 1 \cdot t^2 = 10 + 3,3t$$

$$0,5 t^2 - 3,3t - 10 = 0$$

$$t = 8,858s$$

$$x = \frac{1}{2} 1 (8,858)^2 = 39,232m$$

(m)

PERNA $6 \frac{m}{s}$ (t+30)

$$10t = 6(t+30)$$

$$10t = 6t + 180 \rightarrow t = 45s$$