Guía FIME

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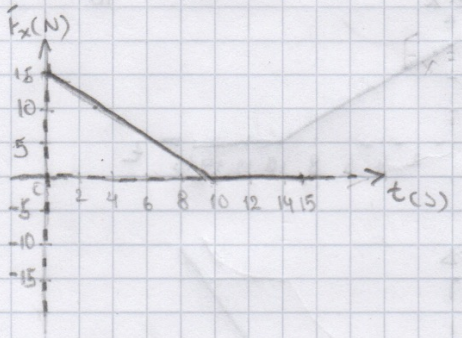
1.

$m = 5\,kg$



$F_{x(t)} = 15 - \frac{3}{12}t \quad [0, 10)$

- $x = 0\,m$

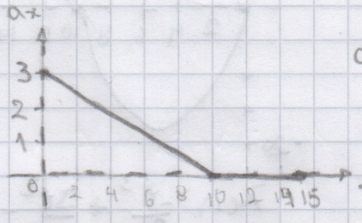
$V_{0x} = 10\,m/s$

- $a_{x(t)}$

$a_x = \frac{F_x}{m}$

$= \frac{15}{5}$

$= 3$



$a_{x(t)} = 3 - \frac{3}{12}t \quad [0, 10)$

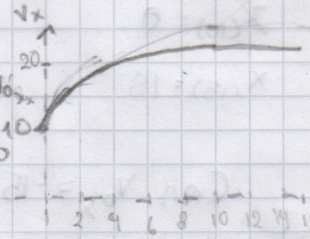
$a_{x(10)} = 3 - \frac{3 \cdot 10}{10} = 0$

$a_{x(15)} = 3 - \frac{3 \cdot 15}{10} = 0$

- $V_{x(t)}$

$V_{x(t)} = \frac{-3t^2}{20} - 3t + V_{0x}$

$= \frac{-3t^2}{20} - 3t + 10$



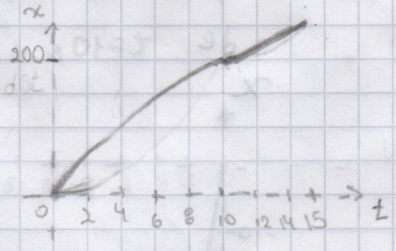
$V_{x(10)} = \frac{-3(10)^2}{20} - 3 \cdot 10 + 10$

$= 25$

- $x_{(t)}$

$x_{(t)} = \frac{-t^3}{20} + \frac{3t^2}{2} + 10t$

$= -\frac{t^3}{20} + \frac{3t^2}{2} + 10t$



$x_{(10)} = 200$

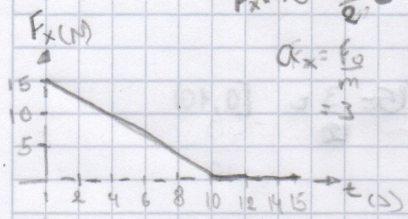
$x_{(15)} = 318$

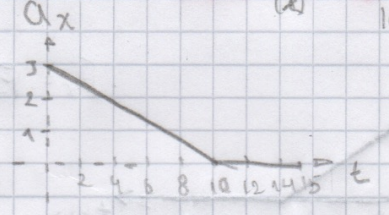
2. $V_{0x} = -10\,m/s$

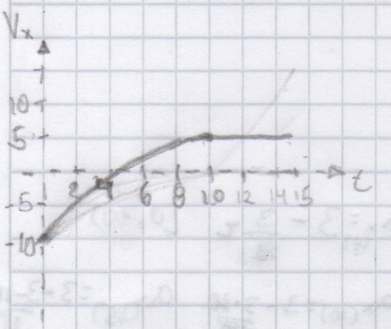
$F_x = 15 - \frac{3}{2}t$

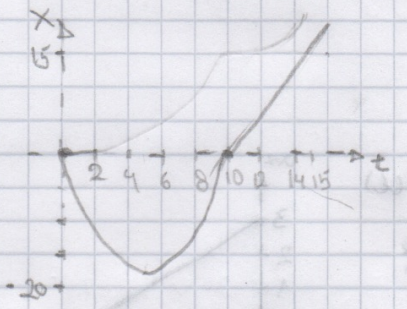
$a_x = \frac{F_R}{m} = 3$

$a_{x(t)} = 3 - \frac{3}{10}t$









$V_{x(t)} = \frac{-3t^2}{20} + 3t + V_{0x}$

$= \frac{-3t^2}{20} + 3t - 10$

$V_{x(10)} = 5$

$x_{(t)} = \frac{-t^3}{20} + \frac{3t^2}{2} - 10t$

$x_{(10)} = 0$ $\quad x_{(5)} = -18$

$x_{(15)} = 18$

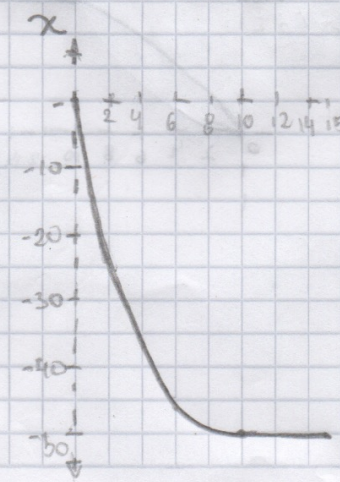
3. $t = 10\,s$ $\quad V_{0x} = ?$

$V_{x(10)} = \frac{-3 \cdot 10^2}{20} + 3 \cdot 10 + V_{0x}$

$0 = 15 + V_{0x}$

$-15 = V_{0x}$

Con $V_{0x} = -15\,m/s$ el cuerpo queda en reposo a partir de $t = 10\,s$.



$x_{(t)} = \frac{-t^3}{20} + \frac{3t^2}{2} - 15t$

$x_{(10)} = -50$