

Sana Carolima Costa Gomes  
m<sup>o</sup> mecunográfico: 98376

1-  $x(t) = -20t + 2t^2 + t^3$  (m)

mudança de sentido  $\Rightarrow v(t) = 0$

$$v(t) = \frac{d x(t)}{dt} = -20 + 4t + 3t^2 \quad (\text{m/s})$$

$$v(t) = 0 \Rightarrow 3t^2 + 4t - 20 = 0 \Rightarrow t = \frac{-4 \pm \sqrt{16 + 240}}{6}$$

$$\Rightarrow t = \frac{-4 \pm 16}{6} \Rightarrow t = 2 \text{ s}$$

2- equações do mov. uniforme:

~~$$\vec{a} = \vec{0}$$~~ 
$$\vec{a} = \vec{0}$$

~~$$\vec{v} = c^k$$~~ 
$$\vec{v} = c^k$$

$$\vec{h} = h_0 + v(t - t_0)$$

3- equações do mov. uniformemente variado

$$\vec{a} = c^k$$

$$\vec{v} = v_0 + at^k$$

$$\vec{h} = h_0 + v(t - t_0) + \frac{1}{2}at^2$$

$$4- x(t) = 4,9 + 7,9t - 5,8t^2 + 5,8t^3 \quad (\text{m})$$

$$\vec{v}(t) = \frac{dx(t)}{dt} = (7,9 - 11,6t + 17,4t^2) \hat{i} \quad (\text{m/s})$$

$$v(4,1) = 7,9 - 11,6 \times 4,1 + 17,4 \times (4,1)^2$$

$$= 252,8 \text{ m/s}$$

$$5- x(t) = -10 + 6t^2 + 5t^3 \quad (\text{m})$$

~~$$\vec{v}_{med} = \frac{\Delta x}{\Delta t}$$~~

~~$$x(t) = -10 + 6t^2 + 5t^3$$~~

~~$$x(t) = -10 + 6t^2 + 5t^3$$~~

~~$$\vec{v}_{med} = \frac{\Delta x}{\Delta t} = \frac{x_1 - x_0}{t_1 - t_0} = \frac{-10 - (-10)}{1 - 0} = 0 \text{ m/s}$$~~

$$v(t) = \frac{dx(t)}{dt} = 12t + 15t^2$$

$$v(0) = 0 \text{ m/s}$$

$$v(1) = 12 + 15 = 27 \text{ m/s}$$

$$\vec{a}_{med} = \frac{|\Delta v|}{\Delta t} = \frac{v(1) - v(0)}{1 - 0} = \frac{27 - 0}{1} = 27 \text{ m/s}^2$$

$$= \frac{\sqrt{v(0)^2 + v(1)^2}}{1} = \sqrt{27^2} = 27 \text{ m/s}^2$$