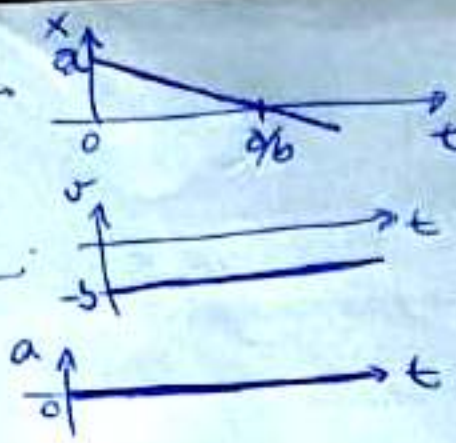
(a) $x(t) = a - bt$ (cm)

$v(t) = \frac{d}{dt}[x(t)] = -b$ (cm/s)

$a(t) = \frac{d}{dt}[v(t)] = 0$ (cm/s²)



$x_0 = a$

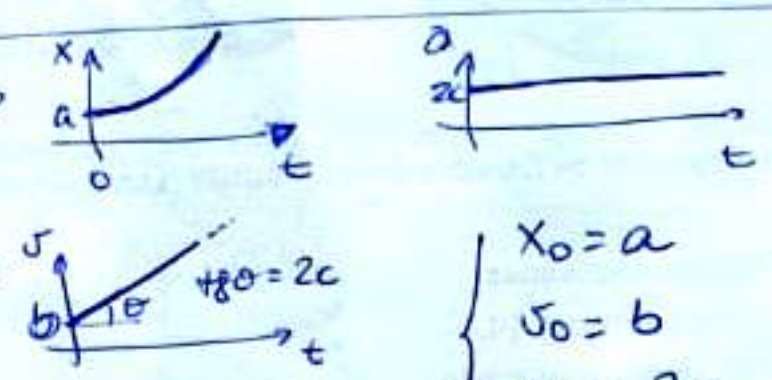
$v_0 = -b$

$a_0 = 0$

(b) $x(t) = a + bt + ct^2$ (cm)

$v(t) = \frac{d}{dt}[x(t)] = b + 2ct$ (cm/s)

$a(t) = \frac{d}{dt}[v(t)] = 2c$ (cm/s²)



$x_0 = a$

$v_0 = b$

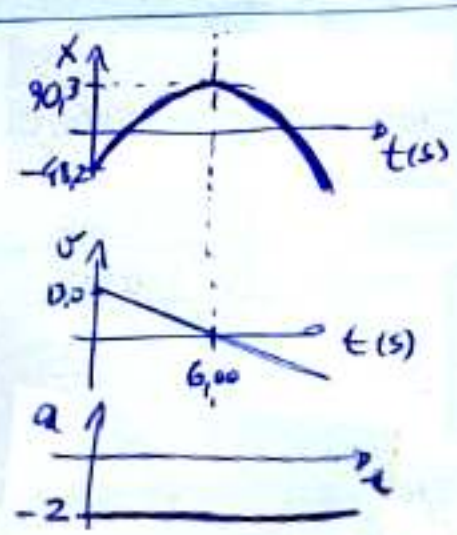
$a_0 = 2c$

(c) $x(t) = 71,3 + (2,12 - t)(t - 10,9)$ (cm)

$v(t) = 13,0 - 2,00t$ (cm/s) $\quad x_0 = -48,2$ cm

$a(t) = -2,00$ (cm/s²) $\quad v_0 = 13,0$ cm/s

$a_0 = -2$ cm/s



(d) $x(t) = 378 + 10,8(t - 1,78) + 56,9(t - 1,78)^2$ (cm)

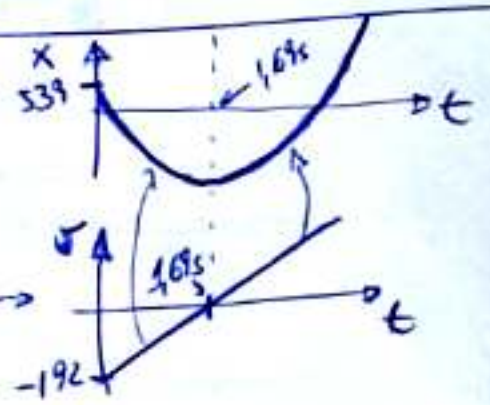
$v(t) = 10,8 + 114(t - 1,78)$ (cm/s)

$a(t) = 114$ (cm/s²)

$x_0 = 539$ cm

$v_0 = -192$ cm/s

$a_0 = 114$ cm/s²



(e) $x(t) = a + be^{ct}$ (cm)

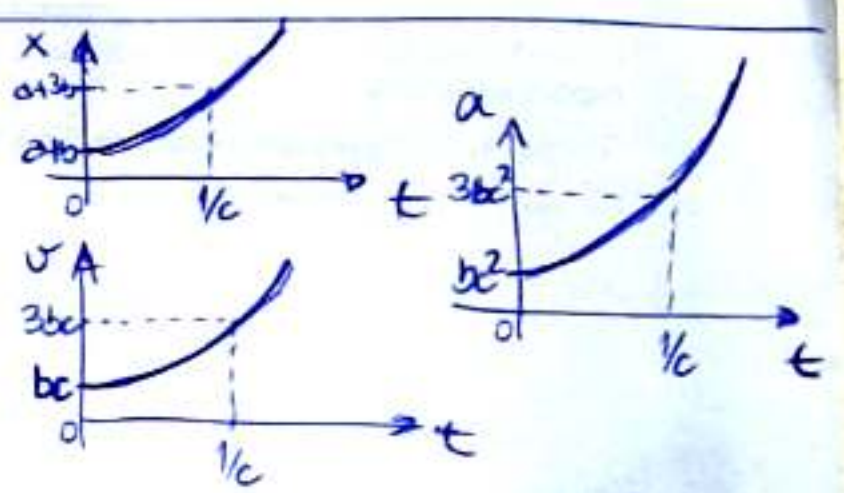
$v(t) = bce^{ct}$ (cm/s)

$a(t) = bc^2e^{ct}$ (cm/s²)

$x_0 = a + b$

$v_0 = bc$

$a_0 = bc^2$

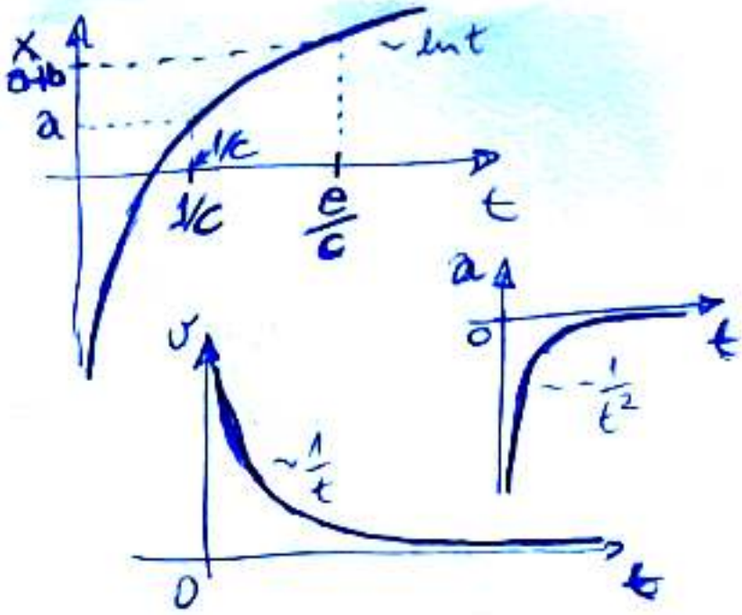


(f) $x(t) = a + b\ln(ct)$

$$v(t) = \frac{b.c}{c.t} = \frac{b}{t}$$

$$a(t) = -\frac{b}{t^2}$$

$$\begin{cases} x_0 = -\infty \\ v_0 = +\infty \\ a_0 = -\infty \end{cases}$$



(g) $x(t) = a + b\cos(ct)$ cm

$v(t) = -bc.\text{sen}(ct)$ $\frac{cm}{s}$

$a(t) = -bc^2\cos(ct)$ $\frac{cm}{s^2}$

período $T \Rightarrow c.T = 2\pi$

$T = \frac{2\pi}{c}$

$[c] = \frac{rad}{s} = \frac{1}{s}$

$[c^2] = \frac{1}{s^2}$