Fecha

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Datos

$v_{(t)} = \alpha - \beta t^2$

$\alpha = 4\ m/s$

$\beta = 2\ m/s^3$

$x_{(0)} = 0$

$x_{(t)} - ?$

$a_{(t)} - ?$

$$v = \frac{dx}{dt}$$

$$v\,dt = dx$$

$$(\alpha - \beta t^2)dt = dx$$

$$\alpha\,dt - \beta t^2 dt = dx$$

$$\int_0^t \alpha\,dt - \int_0^t \beta t^2 = \int_{x_{(0)}}^{x_{(t)}} dx$$

$$\alpha t \Big|_0^t - \frac{\beta t^3}{3}\Big|_0^t = x_{(t)} - x_{(0)}$$

$$\boxed{\alpha t - \frac{\beta}{3} t^3 = x_{(t)}}$$

$$\boxed{a = \frac{dv}{dt} = -2\beta t}$$