15.24

lördag 24 december 2022 12:40

Kraftekvationen:
$F = a \cdot m$

$m \cdot v'(t) = -5v^2 \qquad k = 5\ Ns^2/m^2 \qquad v(0) = 3 \qquad m = 2$

$$2 \cdot \frac{dv}{dt} = -5v^2$$

$$\frac{2}{v^2} \cdot dv = -5\ dt$$

$$\int \frac{2}{v^2}\, dv = -\int 5\, dt$$

$$-\frac{2}{v} = -5t + C$$

$$\frac{2}{5t + C} = v$$

$$v(0) = \frac{2}{0 + C} = 3 \qquad \frac{2}{3} = C$$

$$v = \frac{2}{5t + 2/3} = \frac{6}{15t + 2}$$