

# Calculo

$$a - z = zy^3 - x^2y, \quad x = t^2 + 1 \quad \text{e} \quad y = t^2 - 1$$

$$\frac{dz}{dt} = \frac{dz}{dx} \cdot \frac{dx}{dt} + \frac{dz}{dy} \cdot \frac{dy}{dt}$$

$$\frac{dz}{dx} = y^3 - 2xy$$

$$\frac{dx}{dt} = 2t = \frac{2y}{dt}$$

$$\frac{dz}{dy} = 3xy^2 - x^2$$

$$(y^3 - 2xy) \cdot (2t) + (3xy^2 - x^2) \cdot (2t)$$

$$\left[ ((t^2 - 1)^3 - 2(t^2 + 1)(t^2 - 1)) + 3(t^2 + 1)(t^2 - 1)^2 - (t^2 + 1)^2 \right]$$

$$2t$$

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Coca-Cola



$$b - \frac{x-y}{x+2y}$$

$$x = e^{\pi t}$$

$$y = e^{-\pi t}$$

$$\frac{dz}{dx} = \frac{3y}{(x+2y)^2}$$

$$\frac{dz}{dt} = \frac{3e^{-\pi t} \cdot \pi e^{\pi t} + 3e^{\pi t} \cdot \pi e^{-\pi t}}{(e^{\pi t} + 2e^{-\pi t})^2}$$

$$\frac{dz}{dy} = \frac{-3x}{(x+2y)^2}$$

$$\frac{dz}{dt} = \frac{6}{(e^{\pi t} + 2e^{-\pi t})^2}$$

$$\frac{dx}{dt} = \pi \cdot e^{\pi t}$$

$$\frac{dy}{dt} = -\pi e^{\pi t}$$

$$c - (x-y)^5$$

$$x = s^2 + t^2$$

$$y = st^2$$

$$\frac{dz}{dx} = 5(x-y)^4$$

$$\frac{dz}{dt} = 5(x-y)^4 \cdot s^2 +$$

$$[-5(x-y)^4 \cdot 2ts]$$

$$\frac{dz}{dy} = -5(x-y)^4$$

$$\frac{dz}{dt} = 5(s^2 + t^2 - st^2) \cdot s^2 -$$

$$5(s^2 + t^2 - st^2) \cdot 2ts$$

$$\frac{dx}{dt} = s^2$$

$$\frac{dy}{dt} = 2ts$$

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Refreshing