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Dynamic equation can refer to the differential equation in discrete time. differential equation in continuous time. time scale calculus in combined discrete and continuous time

$$y = Ate^t \quad \text{-- (I)}$$

$$\frac{dy}{dt} = Ate^t + e^t \frac{d}{dt}(At)$$

$$\frac{dy}{dt} = Ate^t + Ae^t \quad \text{-- (II)}$$

making  $Ae^t$  the S.O.F

$$y = Ate^t$$

$$y/t = Ae^t \quad \text{-- (III)}$$

Put equation (I) and (III) in equation (II)

$$\frac{dy}{dt} = yt \frac{y}{t}$$

$$m \cdot x \cdot b \cdot t$$

$$t \frac{dy}{dt} = ty + y$$

$$t \frac{dy}{dt} = ~~ty~~ (t+1)y$$

$$\therefore t \frac{dy}{dt} = (1+t)y = 0$$