7. $\dfrac{du}{dt} = \alpha u$ $\qquad$ $u(0) = u_0$

Caso base $\quad u_{(1)} = u_0 + \Delta t \alpha u_0 = u_0(1 + \alpha \Delta t)$

$u_{(2)} = u_0(1 + \Delta t \alpha) + \Delta t \alpha (u_0(1 + \alpha \Delta t))$

$u_{(2)} = u_0(1 + 2\Delta t \alpha + (\alpha \Delta t)^2) = v_0(1 + \alpha(t))^2$

Paso inductivo:

$$u_{(n)} = v_0 (1 + \Delta t \alpha)^n$$

$$u_{(n+1)} = u_0 (1 + \Delta t \alpha)^n + \Delta t \alpha (1 + \Delta t \alpha)^n u_0$$

$$u_{(n+1)} = v_0 (1 + \Delta t \alpha)^n (1 + \Delta t \alpha)$$

$$u_{(n+1)} = u_0 (1 + \Delta t \alpha)^{n+1}$$