

$$\frac{dv}{dt} = v^q, \quad q=1$$

$$\int \frac{dv}{v} = \int dt$$

$$\ln|v| = t + C_1$$

$$v(t) = e^{t+C_1} = C e^t$$

$$v(0) = 1, \quad C = 1$$

$$v(t) = e^t$$

para $q < 1$

$$\frac{dv}{dt} = v^q \rightarrow \int \frac{dv}{v^q} = \int dt$$

$$\frac{v^{1-q}}{1-q} = t + C_2$$

$$v(t) = (t(1-q) + 1)^{\frac{1}{1-q}}$$

$$t(1-q) + 1 > 0 \Rightarrow t > \frac{-1}{1-q}$$

$$v(t) = (t(1-q) + 1)^{\frac{1}{1-q}}$$