

$$\textcircled{1} \quad \frac{du}{dt} = u^q, \quad t \in [0, 10]$$

En el caso  $q=1$ :

$$\frac{du}{dt} = u^1$$

$$\int \frac{du}{u} = \int dt$$

$$\ln u = t$$

$$u = e^t + C$$

En el caso  $q < 1$ :

$$\frac{du}{dt} = u^q$$

$$\int \frac{du}{u^q} = \int dt$$

$$\int \frac{du}{u^q} = \int dt$$

constante

$$u^{(1-q)/(1-q)} = t(1-q) + 1$$

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

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