

$$y_1(x) = \frac{1}{x} \quad " \quad y' = -\frac{1}{x^2} - \frac{y}{x} + y^2 \quad (6)$$

$$y' = q_1(x) + q_2(x)y + q_3(x)y^2$$

: 'C₂' 'C₃'

y = y₁ + $\frac{1}{v}$ 1. ppb / 2. sk y₁(x) 'C₂' / 3. sk 'C₃'

$$v = \left[C + \int Q(x) e^{\int P(x) dx} dx \right] e^{-\int P(x) dx}$$

$$\begin{cases} P(x) = q_2 + 2q_3 y_1 \\ Q(x) = -q_3 \end{cases}$$

$$y' = -\frac{1}{x^2} - \frac{1}{x}y + y^2, \quad y_1(x) = \frac{1}{x}$$

$$\begin{cases} q_1(x) = -\frac{1}{x^2} \\ q_2(x) = -\frac{1}{x} \\ q_3(x) = 1 \end{cases} \Rightarrow \begin{cases} P(x) = q_2 + 2q_3 y_1 = -\frac{1}{x} + 2 \cdot 1 \cdot \frac{1}{x} = \frac{1}{x} \\ Q(x) = -q_3 = -1 \end{cases}$$

$$v = \left[C + \int Q(x) \cdot e^{\int P(x) dx} dx \right] e^{-\int P(x) dx}$$

$$v = \left[C - \int e^{\int \frac{1}{x} dx} dx \right] e^{-\int \frac{1}{x} dx} = \left[C - \int e^{\ln|x|} dx \right] e^{-\ln|x|} =$$

$$= \left[C - \int x dx \right] e^{\ln \frac{1}{|x|}} = \left[C - \frac{x^2}{2} \right] \frac{1}{x} = \frac{C - x^2}{2x}$$

$$v = \frac{C - x^2}{2x} \Rightarrow \frac{1}{v} = \frac{2x}{C - x^2}$$

$$y = y_1 + \frac{1}{v}$$

$$y = \frac{1}{x} + \frac{2x}{C - x^2}$$