

$$\begin{bmatrix} x(t) \\ y(t) \end{bmatrix} = \begin{bmatrix} -\frac{c_2(-3+\sqrt{89})e^{-\frac{(-1+\sqrt{89})t}{2}}}{10} + \frac{c_1(3+\sqrt{89})e^{\frac{(1+\sqrt{89})t}{2}}}{10} + \frac{2t^2}{11} - \frac{2t}{121} - \\ \frac{\frac{3e^t}{11} + \frac{23}{1331}}{c_1e^{\frac{(1+\sqrt{89})t}{2}} + c_2e^{-\frac{(-1+\sqrt{89})t}{2}}} - \frac{t^2}{11} - \frac{15e^t}{22} + \frac{12t}{121} - \frac{17}{1331} \end{bmatrix}$$