

$$\frac{dy}{dt} + 20y = 24$$

$$y_1 = \frac{6}{5} - \frac{6}{5} e^{-20t}$$

$$y_2 = \frac{5}{6} - \frac{5}{6} e^{-20t}$$

$$\frac{dy_1}{dt} = y'_1 = 0 - \frac{6}{5} (-20) e^{-20t}$$

$$y'_1 = 24 e^{-20t}$$

$$\frac{dy_2}{dt} = y'_2 = 0 - \frac{5}{6} (-20) e^{-20t}$$

$$y'_2 = \frac{50}{3} e^{-20t}$$

(1)

$$24 e^{-20t} + 20 \left(\frac{6}{5} - \frac{6}{5} e^{-20t} \right) = 24$$

$$\cancel{24 e^{-20t}} + 24 - \cancel{24 e^{-20t}} = 24$$

$$\underline{24 = 24} \quad \checkmark$$

(2)

$$\frac{50}{3} e^{-20t} + 20 \left(\frac{5}{6} - \frac{5}{6} e^{-20t} \right) = 24$$

$$\cancel{\frac{50}{3} e^{-20t}} + \frac{50}{3} - \cancel{\frac{50}{3} e^{-20t}} = 24$$

$$\underline{\frac{50}{3} = 24} \quad \times$$