6.11*

$$8 \cdot 76$$

$$\theta(t) y(t) + \int_0^t e^{-(t-\tau)} y(\tau) d\tau = 1 \cdot \theta(t) \quad \Longleftrightarrow$$

$$Y = \mathcal{L}(\theta y) \quad g = e^{-t} \quad (Y = \mathcal{L}(\theta y))$$

$$\Longleftrightarrow \quad Y + gY = \mathcal{L}(\theta(t)) \quad \Longleftrightarrow$$

$$\Longleftrightarrow \quad Y\left(1 + \frac{1}{s+1}\right) = \frac{1}{s} \quad \Longleftrightarrow$$

$$\Longleftrightarrow \quad Y \cdot \frac{s+2}{s+1} = \frac{1}{s} \quad \Longleftrightarrow$$

$$\Longleftrightarrow \quad Y(s) = \frac{s+1}{s(s+2)} = \frac{A}{s} + \frac{B}{s+2} =$$

$$= \frac{1}{2} \cdot \frac{1}{s} + \frac{1}{2} \cdot \frac{1}{s+2}$$

$$y(t) = \frac{1}{2}\left(1 + e^{-2t}\right)\theta(t)$$

$$\underline{y(t) = \tfrac{1}{2}\left(1 + e^{-2t}\right), \quad t \geq 0}$$