

7.3.58.

$$f(t) = \begin{cases} 0, & 0 \leq t < \frac{3\pi}{2} \\ \sin t, & t \geq \frac{3\pi}{2} \end{cases}$$

$$\begin{aligned} & u = t - \frac{3\pi}{2}, \quad \sin t = \sin\left(u + \frac{3\pi}{2}\right) = \\ = & \sin u \cos \frac{3\pi}{2} + \sin \frac{3\pi}{2} \cos u = -\cos u = -\cos\left(t - \frac{3\pi}{2}\right) = \end{aligned}$$

$$= -U\left(t - \frac{3\pi}{2}\right) \cos\left(t - \frac{3\pi}{2}\right)$$

$$L\{f(t)\} = -e^{-s\frac{3\pi}{2}} L\{\cos t\} = -e^{-s\frac{3\pi}{2}} \frac{s}{s^2 + 1}$$