6.06**

lördag 17 februari 2024 18:55

Faltningssatsen S. 74

$$\mathcal{L}(f) = \frac{1}{(s+3)^2}$$

$$\mathcal{L}(g) = \frac{1}{s+1}$$

$$\mathcal{L}(f \cdot g) = \frac{1}{(s+1)(s+3)^2} = \frac{A}{s+1} + \frac{B}{(s+3)} + \frac{C}{(s+3)^2} =$$

$$= \frac{1}{4} \cdot \frac{1}{s+1} - \frac{1}{4} \frac{1}{s+3} - \frac{1}{2} \cdot \frac{1}{(s+3)^2}$$

$$\mathcal{L}^{-1}(f \cdot g) = \frac{1}{4}\left(e^{-t} - e^{-3t} - 2te^{-3t}\right)\theta(t) =$$

$$= \frac{1}{4}\left(e^{-t} - (1+2t)e^{-3t}\right)\theta(t)$$