

$$= \frac{1}{2s^2} (1 - 2e^{-s^2} + e^{-s^4}) \quad \text{ROC} = \mathbb{C}$$

$$\hat{h}(\omega) = H(j\omega) = \frac{1}{2(j\omega)^2} (1 - 2e^{-j2\omega} + e^{-j4\omega})$$



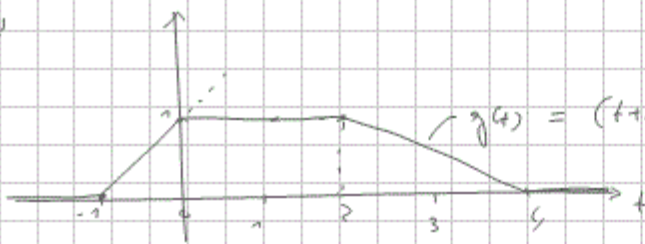
$$f(t) = \frac{1}{2}(t+2)u(t+2) - 2 \cdot \frac{1}{2}t \cdot u(t) + \frac{1}{2}(t-2)u(t-2) = h(t+2)$$

↓

$$F(s) = e^{2s} H(s) = \dots$$

$$\hat{f}(\omega) = \frac{1}{2(j\omega)^2} (e^{j2\omega} - 2 + e^{-j2\omega}) = \frac{1}{2(j\omega)^2} (\cos(2\omega) - 1)$$

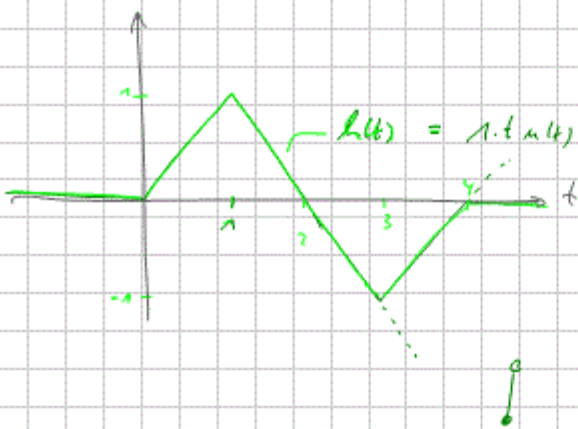
bsp)



$$g(t) = (t+1)u(t+1) - t u(t) - \frac{1}{2}(t-2)u(t-2) + \frac{1}{2}(t-4)u(t-4)$$

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

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



$$h(t) = 1 \cdot t u(t) - 2(t-1)u(t-1) + 2(t-3)u(t-3) - 1(t-4)u(t-4)$$

$$h(t) = \begin{cases} t & : 0 \leq t < 1 \\ 2-t & : 1 \leq t < 3 \\ -4+t & : 3 \leq t < 4 \\ 0 & : \text{sonst} \end{cases}$$

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

ROC = \mathbb{C}

$$\hat{h}(\omega) = \frac{1}{(j\omega)^2} (1 - 2e^{-j\omega} + 2e^{-j3\omega} - 1 \cdot e^{-j4\omega})$$