$$R_1 = \lim_{s \to -1} (s+1)\, h(s) = \frac{-2}{2} = -1 \Rightarrow R_1 = -1$$

$$R_2 = \lim_{s \to -3} (s+3)\, h(s) = \frac{-6}{-2} = +3 \Rightarrow R_2 = +3$$

$$\Rightarrow \boxed{h(s) = -\frac{1}{s+1} + \frac{3}{s+3}}$$

Bsp: $h(s) = \dfrac{1}{s\,(s^2 + 5s + 6)}$ geo: $h(t)$

$s_0 = 0$

$(s - s_1)(s - s_2)$

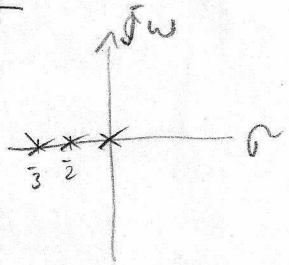
Quadratische Gleichung

$Ax^2 + Bx + C = 0$

$\Rightarrow x_{1/2} = \dfrac{-B \pm \sqrt{B^2 - 4AC}}{2A}$

$\rightarrow s^2 + 5s + 6 = 0 \Rightarrow$

$$s_{1,2} = \frac{-5 \pm \sqrt{25 - 24}}{2} = -\frac{5}{2} \pm \frac{1}{2} \rightarrow s_1 = -2, \quad s_2 = -3$$



$$\Rightarrow h(s) = \frac{1}{s\,(s+2)(s+3)} \rightarrow \text{PBZ}$$

$$h(s) = \frac{R_1}{s} + \frac{R_2}{s+2} + \frac{R_3}{s+3}$$

$$R_1 = \lim_{s \to 0} s\, h(s) = \frac{1}{6}$$

$$R_2 = \lim_{s \to -2} (s+2)\, h(s) = \frac{1}{-2} = -\frac{1}{2}$$

$$R_2 = \lim_{s \to -3} (s+3) \cdot h(s) = +\frac{1}{3}$$

$$\Rightarrow h(s) = \frac{1}{6s} - \frac{1}{2(s+2)} + \frac{1}{3(s+3)}$$

↓ Tabelle

$$\boxed{\frac{1}{6}\varepsilon(t) - \frac{1}{2}e^{-2t} + \frac{1}{3}e^{-3t} = h(t)}$$