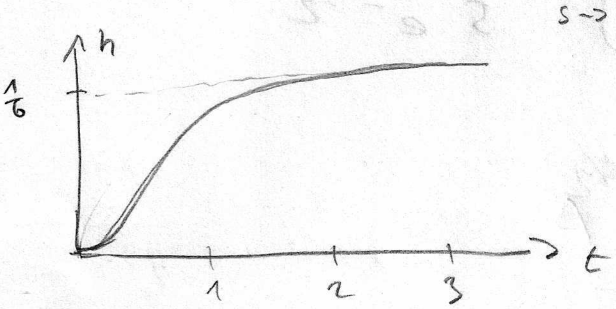
Anfangswert: $\lim\limits_{t\to 0} h(t) = \lim\limits_{s\to\infty} s\cdot h(s)$

$= \lim\limits_{s\to\infty} \cancel{s}\cdot \frac{1}{\cancel{s}(s+2)(s+3)} = \underline{\underline{0}}$

Endwert: $\lim\limits_{t\to\infty} h(t) = \lim\limits_{s\to 0} s\cdot h(s)$

$= \lim\limits_{s\to 0} \cancel{s}\frac{1}{\cancel{s}(s+2)(s+3)} = \frac{1}{6}$



HÜ: $h(s) = \frac{1}{s^3+3s^2+2s}$ ges: Pol-Nst. Diagramm, h(t) Anfangswert / Endwert

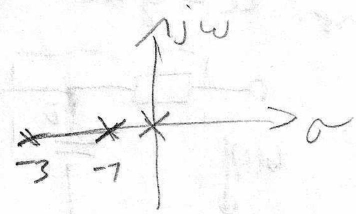
$\to$ Nst: $-2, -1, 0$

Octave: Zaehler = [1 0];
Nenner = [1 3 2 0];
System = tf(Zaehler, Nenner);
roots(Nenner)
$\to -2, -1, 0$

$h(s) = \frac{1}{s(s+1)(s+2)}$

$h(s) = \frac{R_1}{s} + \frac{R_2}{s+1} + \frac{R_3}{s+3}$

$R_1 = \lim\limits_{s\to 0} s\cdot h(s) = \frac{1}{2}$



$R_2 = \lim\limits_{s\to -1} (s+1)\, h(s) = -1$

$R_3 = \lim\limits_{s\to -2} (s+2)\, h(s) = +\frac{1}{2}$

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

$\underline{h(t) = \frac{1}{2} - e^{-t} + \frac{1}{2} e^{-2t}}$

Anfangswert: $\lim\limits_{t\to 0} h(t) = \lim\limits_{s\to\infty} s\cdot h(s) = \lim\limits_{s\to\infty} \frac{1}{(s+1)(s+2)} = \underline{\underline{0}}$

Endwert $\lim\limits_{t\to\infty} h(t) = \lim\limits_{s\to 0} s\cdot h(s) = \lim\limits_{s\to 0} \frac{1}{(s+1)(s+2)} = \underline{\underline{\frac{1}{2}}}$