

$$s=0: \quad 3 = \frac{B(0-1)(0+3)}{-3} \quad \leadsto \quad \underline{\underline{B = -1}}$$

$$s=1: \quad 3 = \frac{C \cdot 1^2(1+3)}{4} \quad \leadsto \quad \underline{\underline{C = \frac{3}{4}}}$$

$$s=-3: \quad 3 = \frac{D \cdot 3^2(3-1)}{3 \cdot 2 = 18} \quad \leadsto \quad \underline{\underline{D = \frac{3}{18} = \frac{1}{6}}}$$

$$s=2: \quad 3 = \frac{A \cdot 2 \cdot 1 \cdot 5}{10} + \frac{(-1) \cdot 1 \cdot 5}{-5} + \frac{\frac{3}{4} \cdot 4 \cdot 5}{15} + \frac{\frac{1}{6} \cdot 4^2}{3}$$

$$10A = 3 + 5 - 15 - \frac{2}{3} = -7 - \frac{2}{3} = \underline{\underline{-\frac{23}{3}}} \quad A = \underline{\underline{-\frac{23}{30}}}$$

$$Y(s) = \frac{A}{s} + \frac{B}{s^2} + \frac{C}{s-1} + \frac{D}{s+3}$$

$$= -\frac{23}{30} \cdot \frac{1}{s} - 1 \cdot \frac{1}{s^2} + \frac{3}{4} \cdot \frac{1}{s-1} + \frac{1}{6} \cdot \frac{1}{s+3}$$

↑

$$y(t) = -\frac{23}{30} \cdot u(t) - 1 \cdot t \cdot u(t) + \frac{3}{4} \underbrace{u(t) e^{+1t}} + \frac{1}{6} \underbrace{u(t) e^{-3t}}$$

n. d. Variablenübergangs

$$= \underline{\underline{u(t) \cdot \left(-\frac{23}{30} - t + \frac{3}{4} e^t + \frac{1}{6} e^{-3t} \right)}}$$

$$u(t) e^{at} \leftrightarrow \frac{1}{s-a}$$

← bzw.