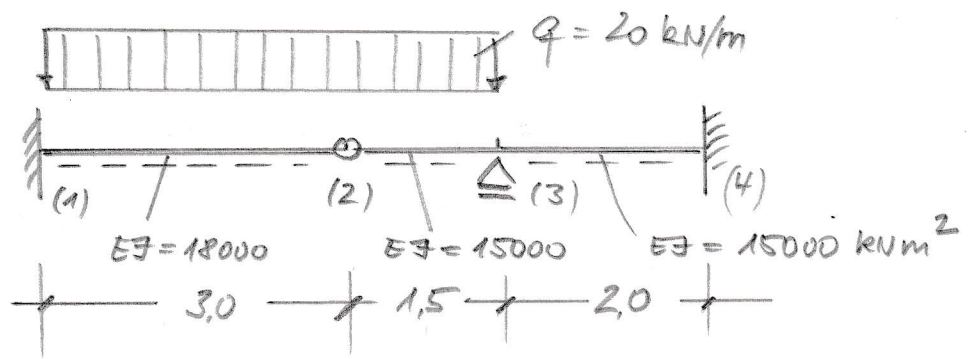


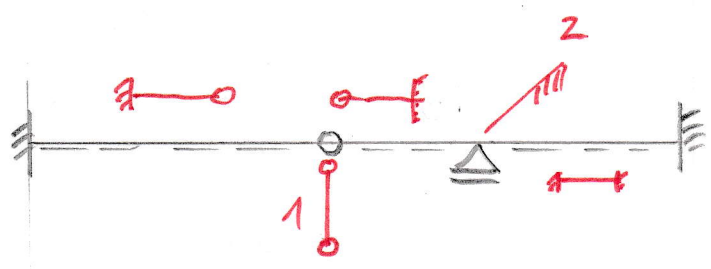
Übungsbeispiel 10:

DWV; Gelenke

- System:



- kinematisch bestimmtes Hauptsystem  $EA = \infty$



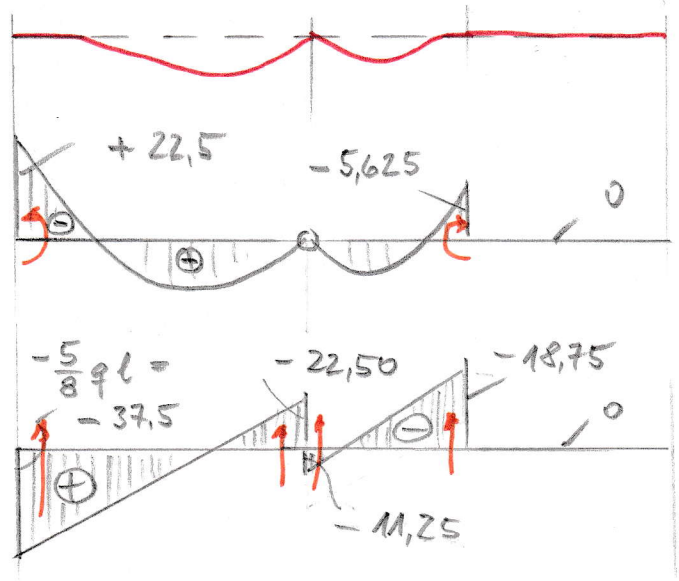
$m' = 2$

- LSZ

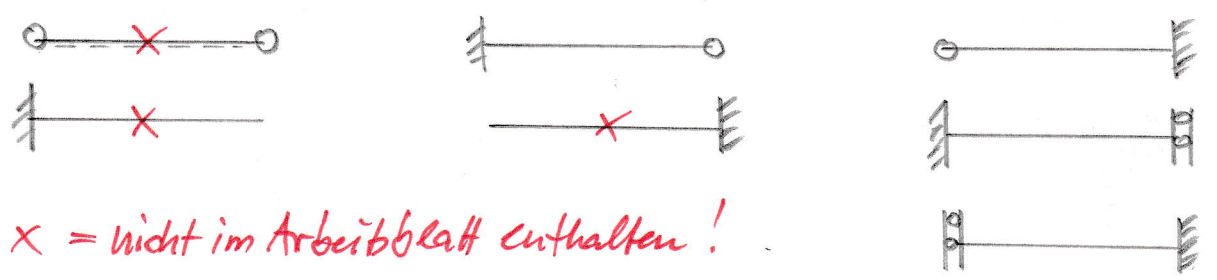
$w^0$

$M^0$

$V^0$

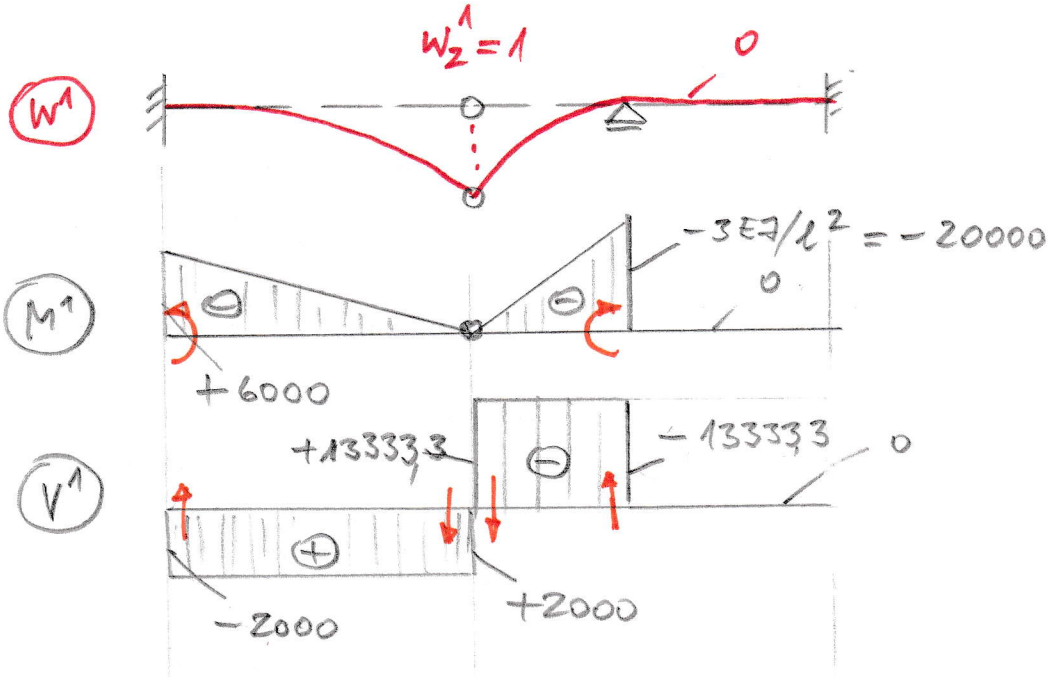


\* Sonderstäbe beim DWV

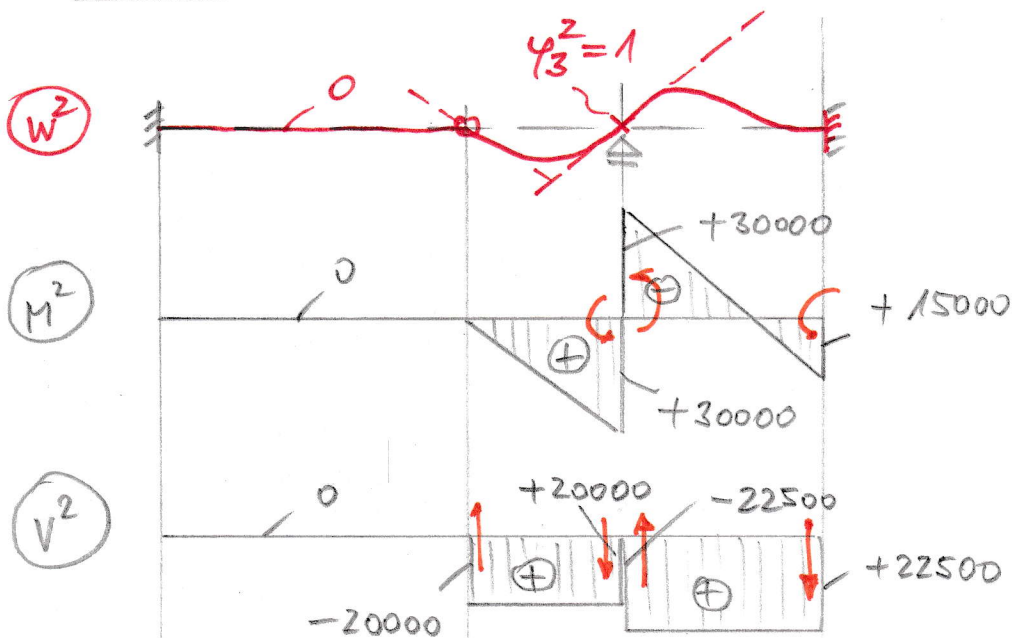


$X =$  nicht im Arbeitsblatt enthalten!

- EV21:



- EV22:



- Gleichgewichtsbedingungen

$$\sum V_2 \stackrel{!}{=} 0 : -22,50 - 11,25 + y_1(2000 + 13333,3) + y_2(-20000) \stackrel{!}{=} 0$$

$$\sum M_3 \stackrel{!}{=} 0 : -5,625 + y_1(-20000) + y_2(30000 + 30000) \stackrel{!}{=} 0$$

$$\leadsto y_1 = \underline{4,1106 \cdot 10^{-3}} ; y_2 = \underline{1,4639 \cdot 10^{-3}}$$

- Superposition + Darstellung der Zustandsgrößen:

$$M_{1,r} = -(22,5 + 6000 \cdot 0,0041106) = \underline{-47,163 \text{ kNm}}$$

$$M_{3,r} = -(15000 \cdot 0,0014639) = \underline{-43,918 \text{ kNm}}$$

$$V_{1,r} = -(-37,5 - 2000 \cdot 0,0041106) = \underline{45,721 \text{ kN}}$$

$$V_{2,l} = 45,721 - 60 = \underline{-14,279 \text{ kN}} = V_{2,r}$$

$$V_{3,l} = -18,75 - 20000 \cdot 0,0041106 + 22500 \cdot 0,0014639 = \underline{32,939 \text{ kN}}$$

