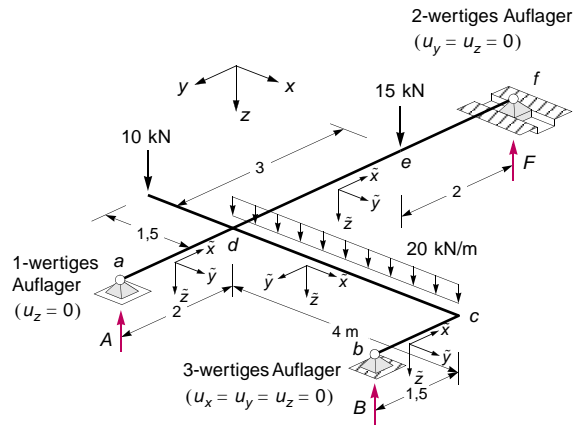


Aufgabe 8.1



Da keine Belastung in der Tragwerksebene wirkt, treten nur die folgenden Schnittgrößen auf:

$M_x(M_T), M_y(M_B), Q_z$

• Auflagerkräfte

Da keine Kräfte in der x-y-Ebene wirken, sind alle Auflagerkräfte in der x-y-Ebene gleich null. Es handelt sich um einen Trägerrost.

$\sum M_y^{(a)} = 0:$

$-20 \cdot 4^2/2 + 10 \cdot 1,5 + B \cdot 4 = 0 \Rightarrow B = 36,25$

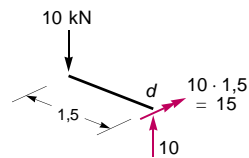
$\sum M_x^{(a)} = 0:$

$-20 \cdot 4 \cdot 2 - 10 \cdot 2 - 15 \cdot 5 + 36,25 \cdot 0,5 + F \cdot 7 = 0 \Rightarrow F = 33,84$

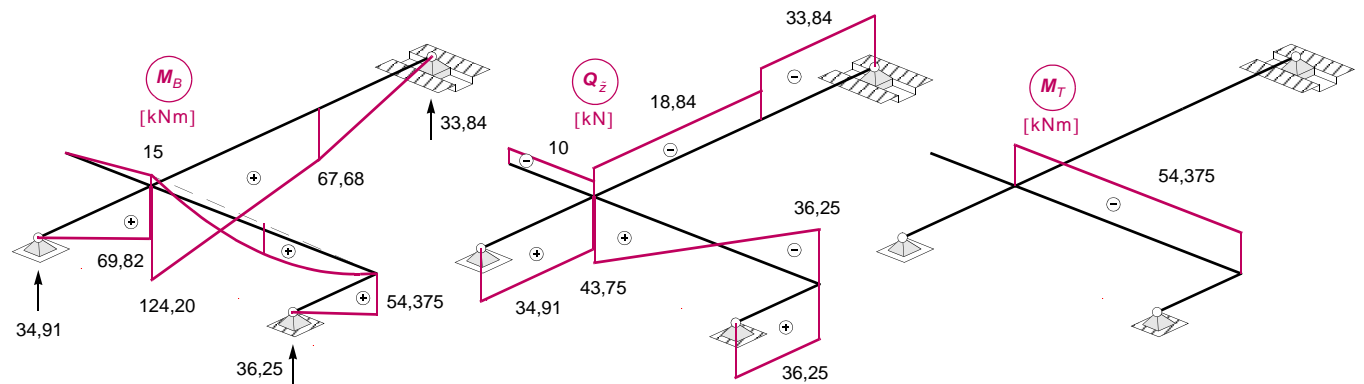
$\sum M_x^{(d)} = 0:$

$33,84 \cdot 5 - 36,25 \cdot 1,5 - 15 \cdot 3 - A \cdot 2 = 0 \Rightarrow A = 34,91$

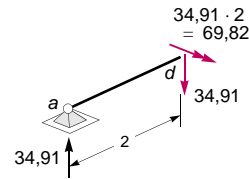
• Kragarm



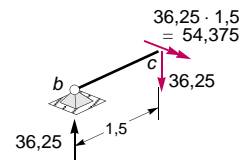
• Darstellung der Zustandslinien



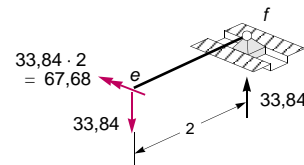
• Bereich a – d



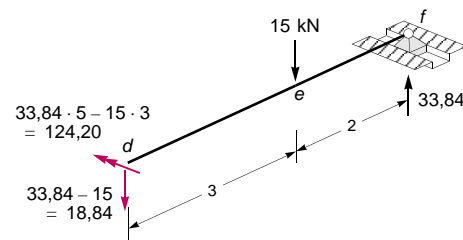
• Bereich b – c



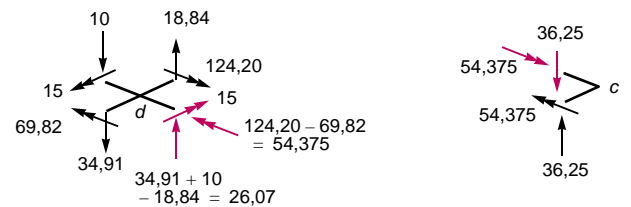
• Bereich e – f (Schnitt rechts von e)



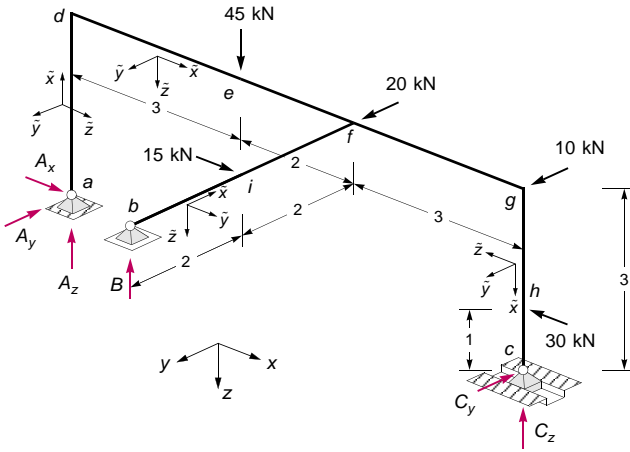
• Bereich d – f



• Rundschnitte Knoten d und c



Aufgabe 8.2



• Auflagerkräfte

$$\sum F_x = 0:$$

$$A_x + 15 - 30 = 0 \Rightarrow A_x = 15$$

$$\sum M_z^{(c)} = 0:$$

$$-15 \cdot 2 - 20 \cdot 3 + A_y \cdot 8 = 0 \Rightarrow A_y = 11,25$$

$$\sum M_x^{(c)} = 0:$$

$$10 \cdot 3 + 20 \cdot 3 - B \cdot 4 = 0 \Rightarrow B = 22,5$$

$$\sum M_y^{(c)} = 0:$$

$$45 \cdot 5 + 30 \cdot 1 - 22,5 \cdot 3 - 15 \cdot 3 + A_z \cdot 8 = 0 \Rightarrow A_z = 17,8125$$

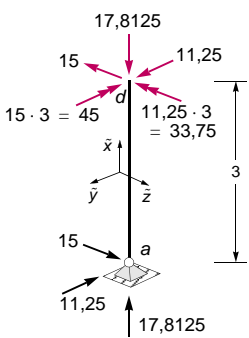
$$\sum M_z^{(a)} = 0:$$

$$10 \cdot 8 + 20 \cdot 5 - 15 \cdot 2 - C_y \cdot 8 = 0 \Rightarrow C_y = 18,75$$

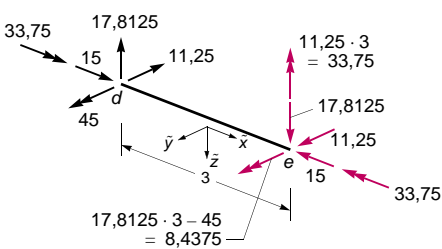
$$\sum M_y^{(a)} = 0:$$

$$-45 \cdot 3 + 30 \cdot 1 - 15 \cdot 3 + 22,5 \cdot 5 + C_z \cdot 8 = 0 \Rightarrow C_z = 4,6875$$

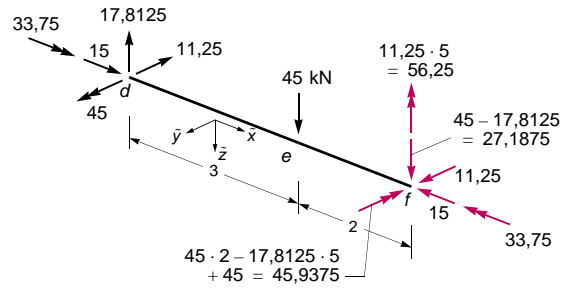
• Bereich a – d



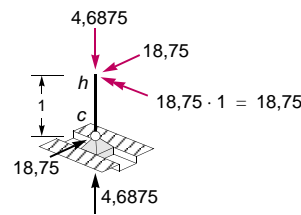
• Bereich d – e



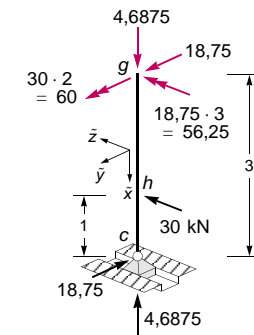
• Bereich d – f



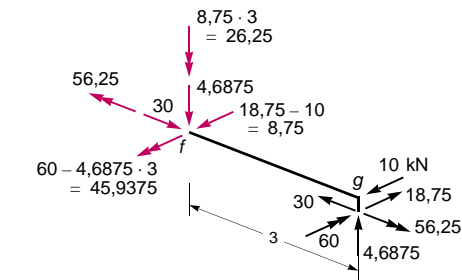
• Bereich c – h



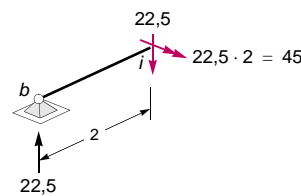
• Bereich c – g



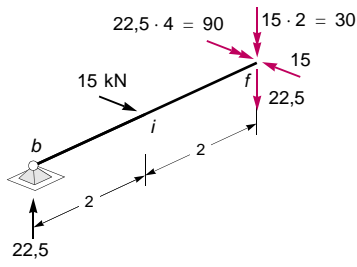
• Bereich f – g



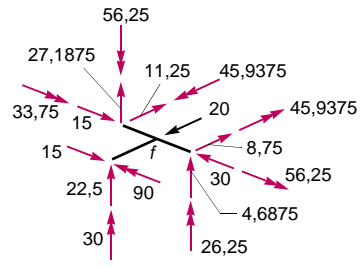
• Bereich b – i



• Bereich $b - f$



• Rundschnitt Knoten f



• Darstellung der Zustandslinien

