

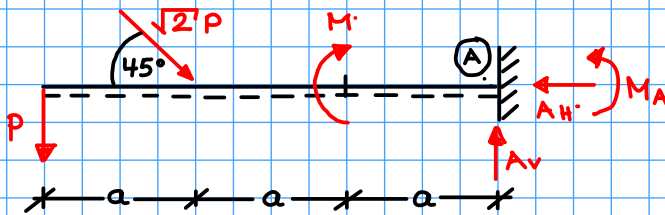
Aufgabe 6.1

◦ statische Bestimmtheit und Brauchbarkeit

$$f = 3 \cdot 1 - (3 + 0) = 3 - 3 = 0$$

→ stat. best. & brauchbar

◦ Freischnitt:



◦ Auflagerkräfte:

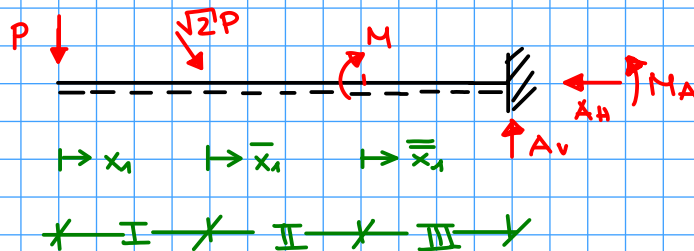
$$\uparrow \sum V = 0 : \quad A_v - P - \frac{1}{\sqrt{2}} \sqrt{2} P = 0 \quad \rightarrow \quad A_v = \underline{\underline{2P}}$$

$$\rightarrow \sum H = 0 : \quad \frac{1}{\sqrt{2}} \sqrt{2} P - A_H = 0 \quad \rightarrow \quad A_H = \underline{\underline{P}}$$

$$\curvearrowright \sum M_A = 0 : \quad M_A - M + P \cdot 3a + \frac{1}{\sqrt{2}} \sqrt{2} P \cdot 2a = 0$$

$$\rightarrow M_A = \cancel{M} - 5Pa = \underline{\underline{-4Pa}}$$

◦ Einteilung in Teilbereiche:



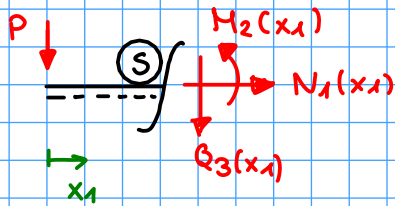
◦ Berechnung der Schnittgrößen:

hier: Gleichgewicht im Teilbereich

→ geschlossener Schnitt

• Bereich I:

$$0 \leq x_1 \leq a$$



"positives"
Schnittufer

$$\rightarrow \sum H = 0: \quad \underline{\underline{N_1(x_1) = 0}}$$

$$\uparrow \sum V = 0: \quad -P - Q_3(x_1) = 0$$

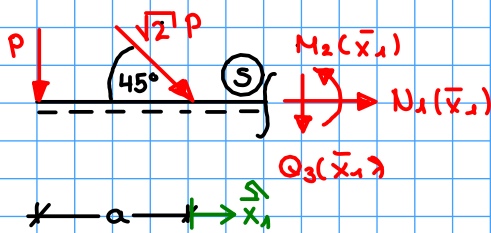
$$\rightarrow \underline{\underline{Q_3(x_1) = -P}}$$

$$\curvearrowright \sum M_{\odot} = 0: \quad M_2(x_1) + P x_1 = 0$$

$$\rightarrow \underline{\underline{M_2(x_1) = -P x_1}}$$

$$\rightarrow \text{diskrete Werte: } M_2(x_1=0) = 0 \quad \checkmark, \quad M_2(x_1=a) = -Pa$$

• Bereich II: $0 \leq \bar{x}_1 \leq a$



"positives Schnittufer"

$$\rightarrow \sum H = 0: \quad \frac{1}{\sqrt{2}} \sqrt{2} P + N_1(\bar{x}_1) = 0 \rightarrow N_1(\bar{x}_1)$$

$$\uparrow \sum V = 0: \quad -P - \frac{1}{\sqrt{2}} \sqrt{2} P - Q_3(\bar{x}_1) = 0$$

$$\rightarrow \underline{\underline{Q_3(\bar{x}_1) = -2P}}$$

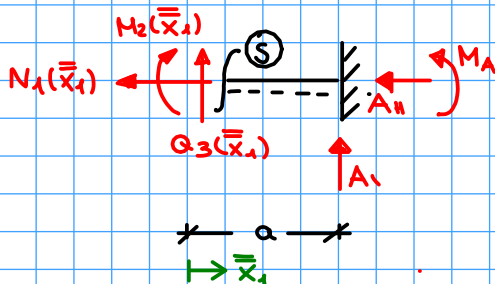
$$\curvearrowright \sum M_{\odot} = 0: \quad M_2(\bar{x}_1) + \frac{1}{\sqrt{2}} \sqrt{2} P \cdot \bar{x}_1 + P(a + \bar{x}_1)$$

$$\rightarrow \underline{\underline{M_2(\bar{x}_1) = -Pa - 2P \bar{x}_1}}$$

$$\rightarrow \text{diskrete Werte: } M_2(\bar{x}_1=0) = -Pa \quad \checkmark$$

$$M_2(\bar{x}_1=a) = -3Pa$$

• Bereich III: $0 \leq \bar{\bar{x}}_1 \leq a$



"negatives
Schnittufer"

$$\rightarrow \sum H = 0: \quad -N_1(\bar{\bar{x}}_1) - A_H = 0$$

$$\rightarrow \underline{\underline{N_1(\bar{\bar{x}}_1) = -A_H = -P}}$$

$$\uparrow \sum V = 0: \quad Q_3(\bar{\bar{x}}_1) + A_V = 0 \rightarrow \underline{\underline{Q_3(\bar{\bar{x}}_1) = -A_V = -2P}}$$

$$\curvearrowright \sum M_{\odot} = 0: \quad -M_2(\bar{\bar{x}}_1) + M_A + A_V(a - \bar{\bar{x}}_1) = 0$$

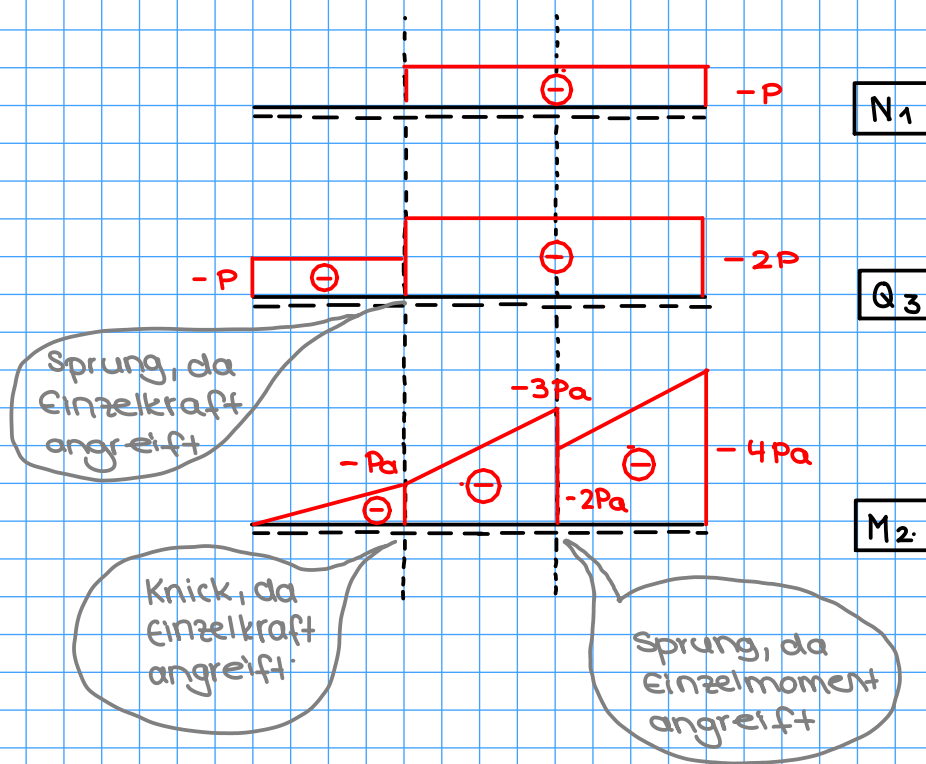
$$\rightarrow M_2(\bar{\bar{x}}_1) = -4Pa + 2P(a - \bar{\bar{x}}_1)$$

$$= \underline{\underline{-2Pa - 2P \bar{\bar{x}}_1}}$$

$$\rightarrow \text{diskrete Werte: } M_2(\bar{\bar{x}}_1=0) = -2Pa$$

$$M_2(\bar{\bar{x}}_1=a) = -4Pa \quad (=M_A \checkmark)$$

° Skizze mit maßgebenden Werten:



Bem.: positive Schnittgrößen werden in Richtung der gestrichelten Faser (negative entgegen.) angetragen.