

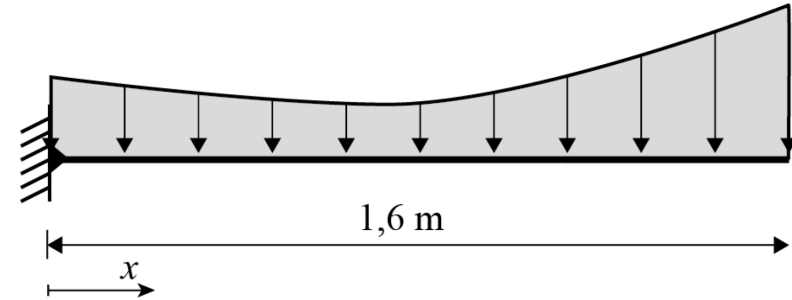
Technische Mechanik I

Repetitorium WS 19/20

Die Tutorium begleitenden Unterlagen bitte mitbringen.
Als Ausdruck (4 Folien auf eine Seite möglich) oder digital!

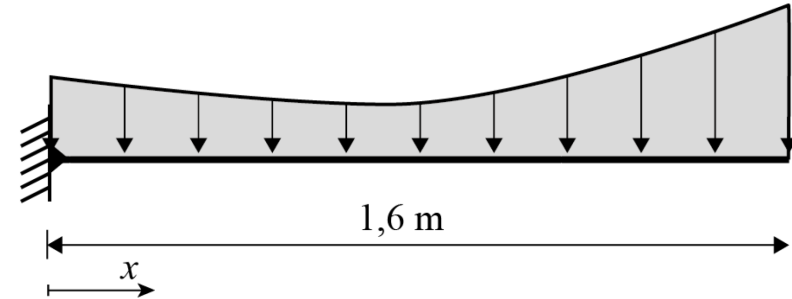
Aufgabe 2 - Tafel

a) geg.: $p(x) = x^3 - 2x + 3$



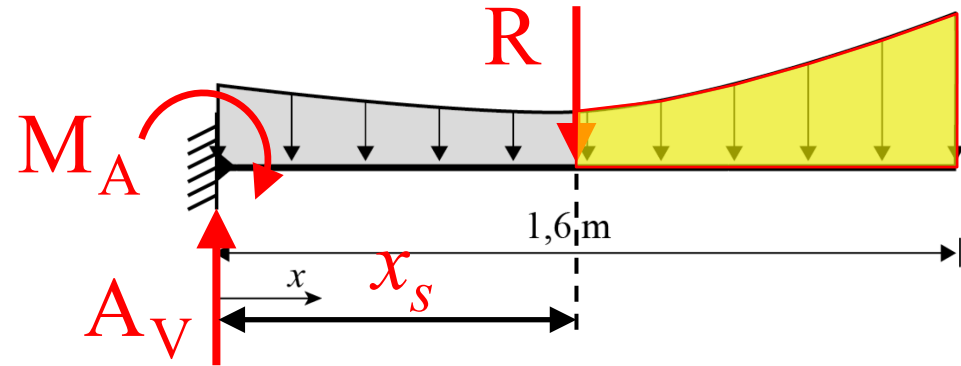
Aufgabe 2 - Tafel

a) geg.: $p(x) = x^3 - 2x + 3$



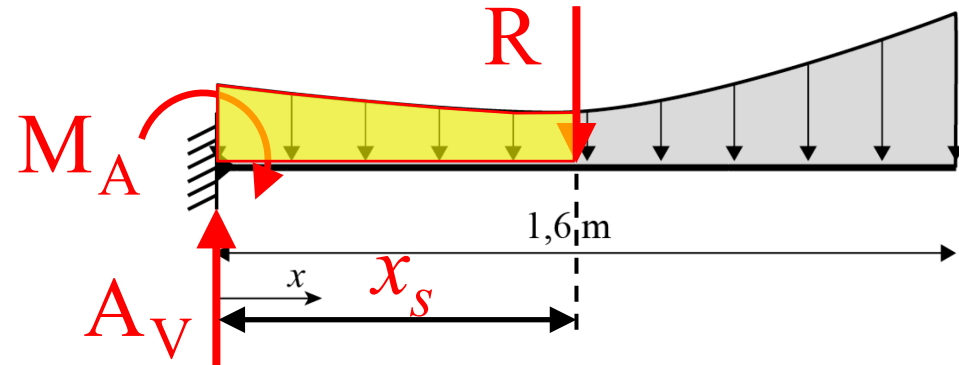
Aufgabe 2 - Tafel

b)



Aufgabe 2 - Tafel

b)



Alternative Schreibweise:

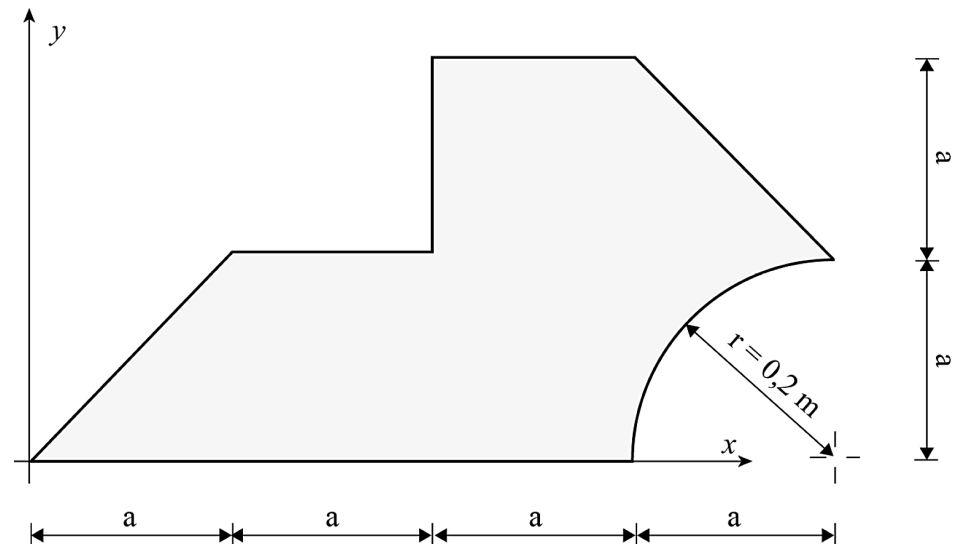
Aufgabe 3

Bestimmen Sie den Schwerpunkt der dargestellten Fläche in Bezug auf das angegebene Koordinatensystem. Skizzieren Sie dazu auch die vorgenommenen Unterteilungen.

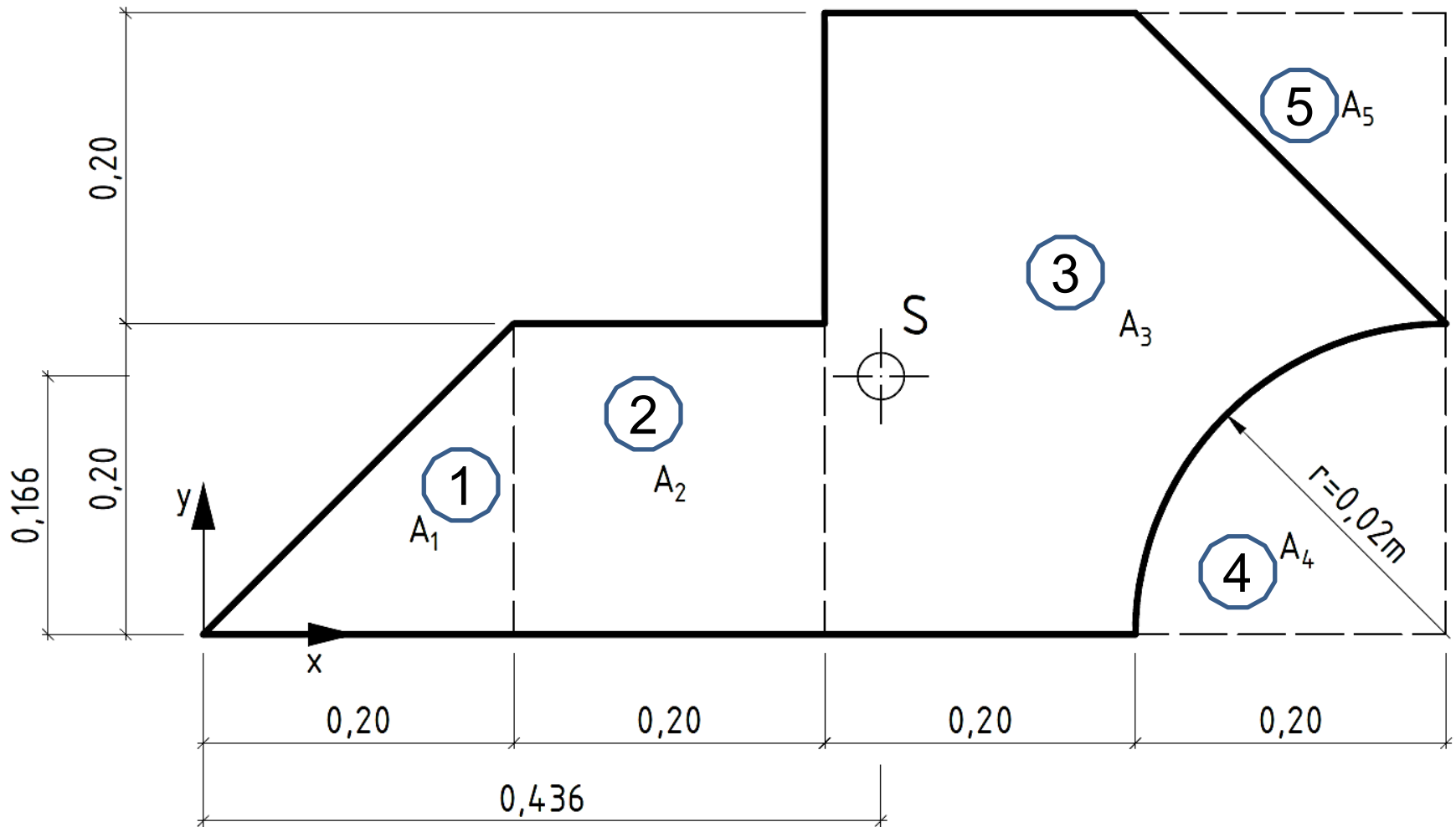
Geg.: $a=0,2 \text{ m}$

$$x_s = \frac{\sum A_i \cdot x_i}{\sum A_i} ;$$

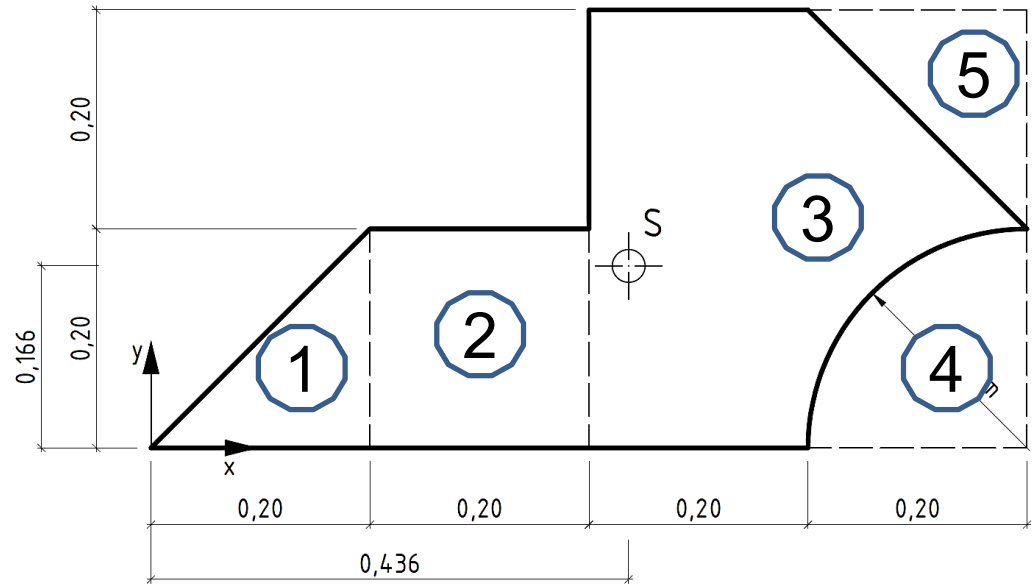
$$y_s = \frac{\sum A_i \cdot y_i}{\sum A_i}$$

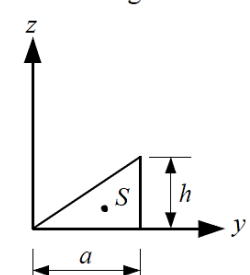


Aufgabe 3

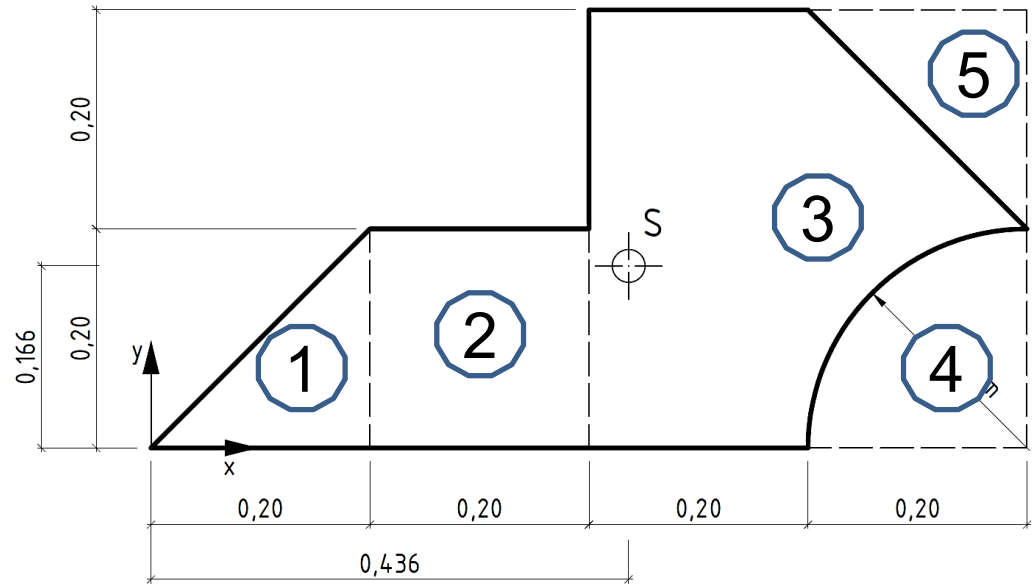


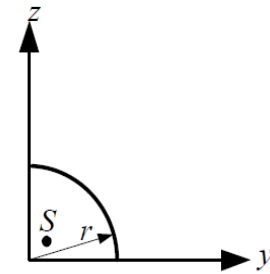
Aufgabe 3 - Tafel



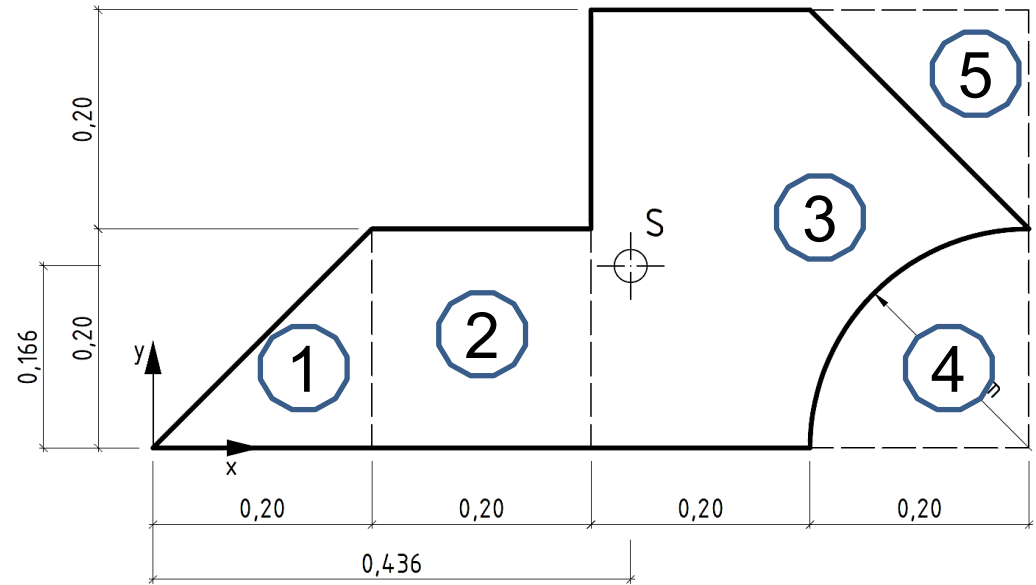
Fläche	Flächeninhalt	Lage des Schwerpunktes
rechtwinkliges Dreieck 	$A = \frac{1}{2} ah$	$y_s = \frac{2}{3} a$ $z_s = \frac{h}{3}$

Aufgabe 3 - Tafel



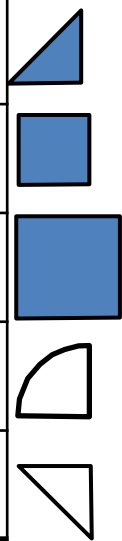
<p>Viertelkreis</p> 	$A = \frac{\pi}{4} r^2$	$y_s = z_s = 0,42441 \cdot r$
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Aufgabe 3 - Tafel



Aufgabe 3

i	A_i	x_i	y_i	$A_i \cdot x_i$	$A_i \cdot y_i$
1					
2					
3					
4					
5					
Σ			Σ		



Aufgabe 3

$$x_s = \frac{\sum A_i \cdot x_i}{\sum A_i}; \quad y_s = \frac{\sum A_i \cdot y_i}{\sum A_i}$$

$$x_s = \frac{0,02 \cdot 0,133 + 0,04 \cdot 0,3 + 0,16 \cdot 0,6 - 0,0314 \cdot 0,715 - 0,02 \cdot 0,733}{0,1686}$$

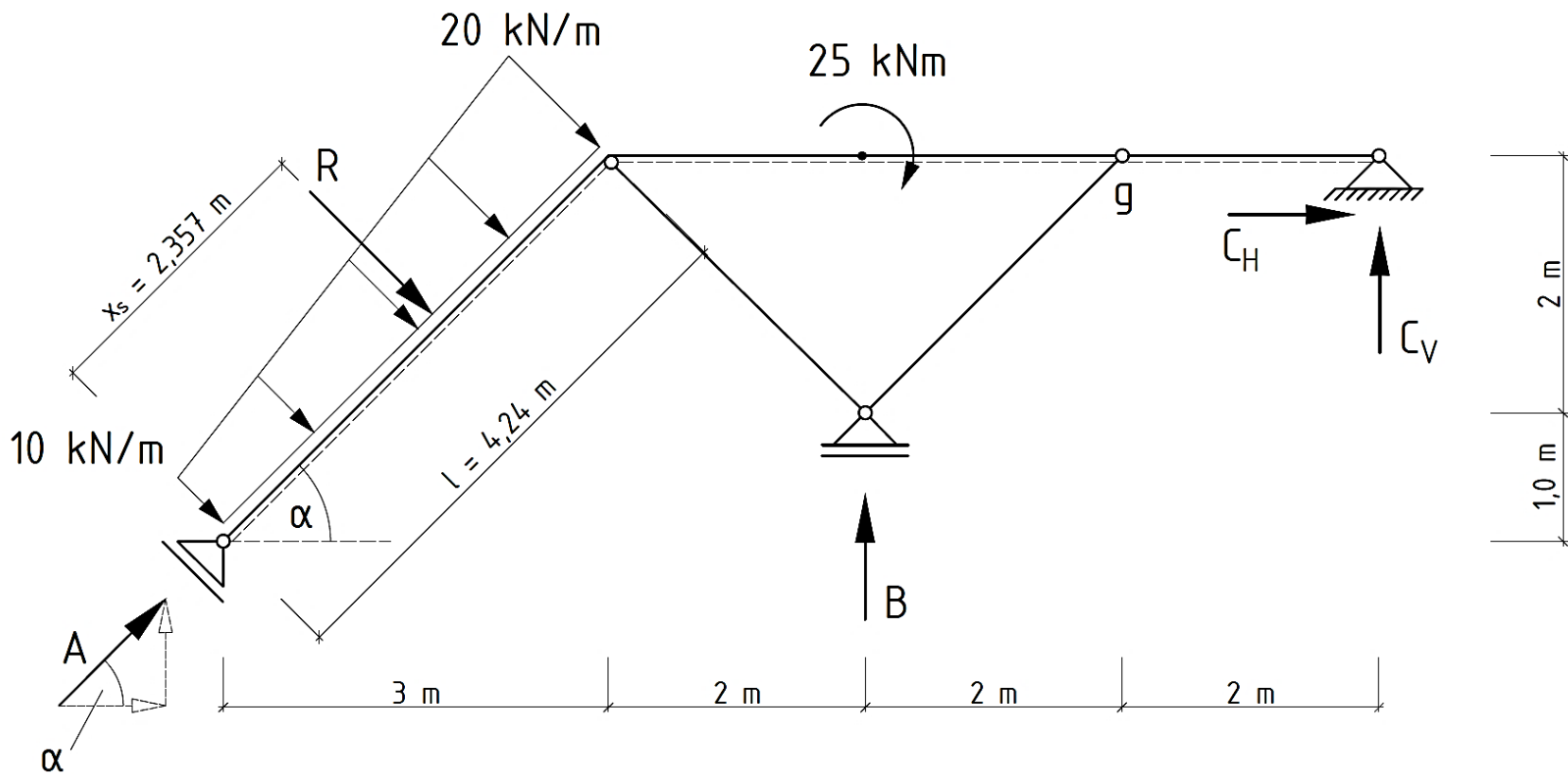
$$= \frac{0,07355}{0,1686} = \underline{\underline{0,436 \text{ m}}}$$

$$y_s = \frac{0,02 \cdot 0,066 + 0,04 \cdot 0,1 + 0,16 \cdot 0,2 - 0,0314 \cdot 0,085 - 0,02 \cdot 0,333}{0,1686}$$

$$= \frac{0,02799}{0,1686} = \underline{\underline{0,166 \text{ m}}}$$

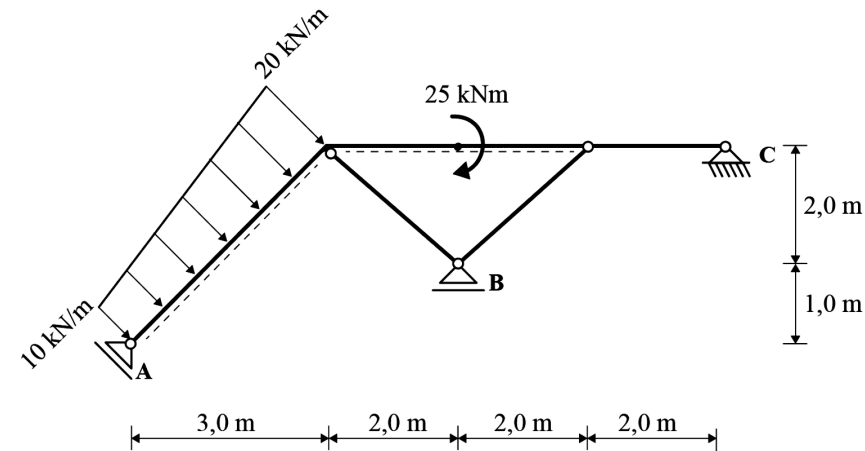
Aufgabe 4 - Tafel

a) stat. Best.:



Aufgabe 4 - Tafel

a)



Trapez

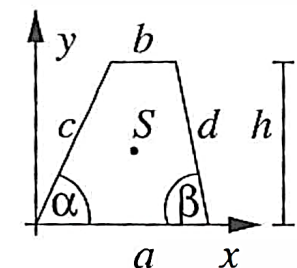
$$A = (ac \sin \alpha + bd \sin \beta) / 2$$

$$= (a+b)h/2 \quad U = a+b+c+d$$

$$h = c \sin \alpha = d \sin \beta$$

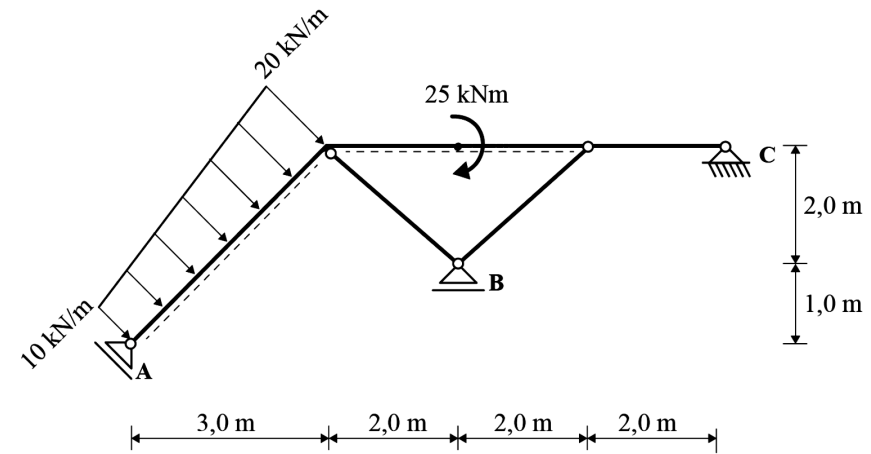
$$x_s = (b + c \cos \alpha) / 3 + (a^2 + bc \cos \alpha) / (3(a+b))$$

$$y_s = h(a + 2b) / (3(a+b))$$



Aufgabe 4 - Tafel

a)

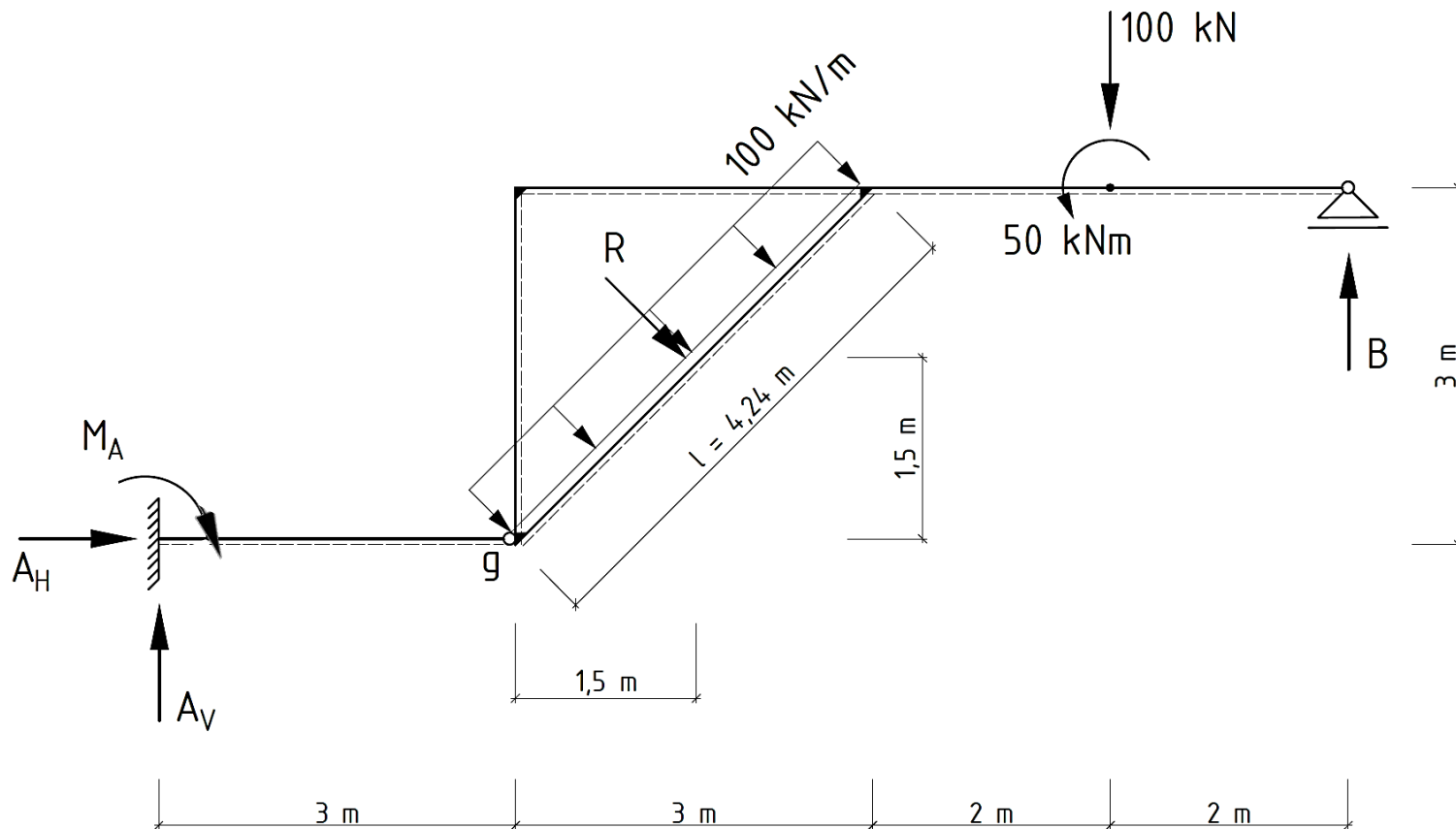


Aufgabe 4 - Tafel

a)

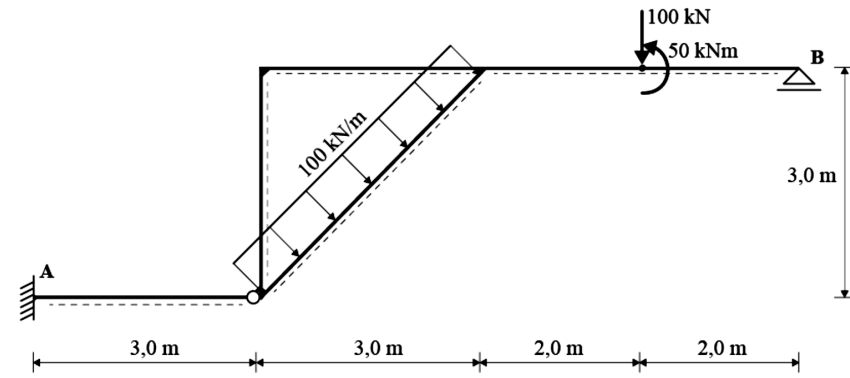
Aufgabe 4 - Tafel

b) stat. Best.:



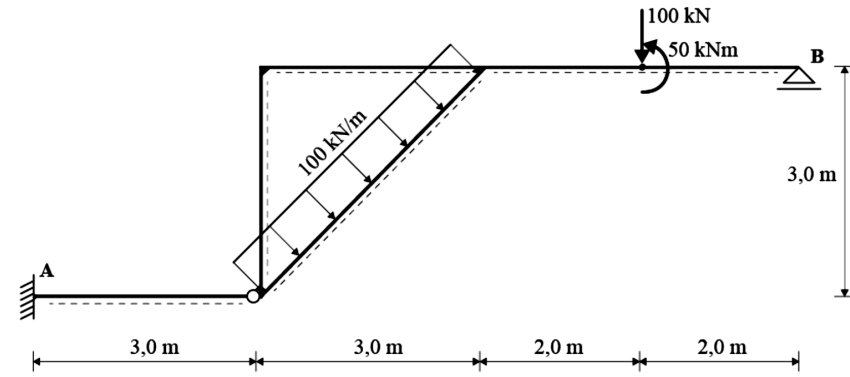
Aufgabe 4 - Tafel

b)



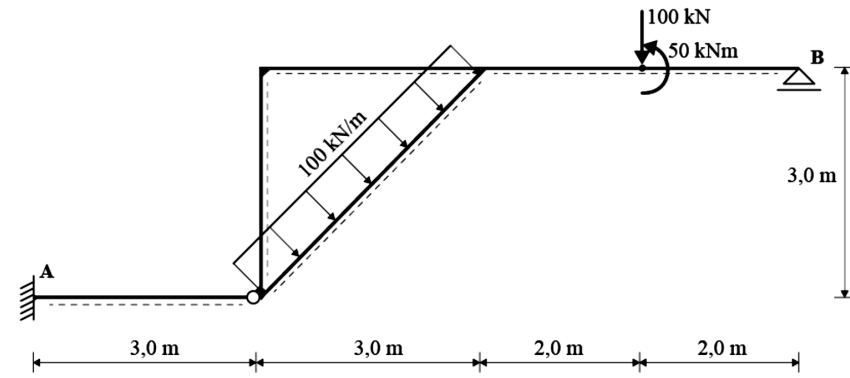
Aufgabe 4 - Tafel

b)

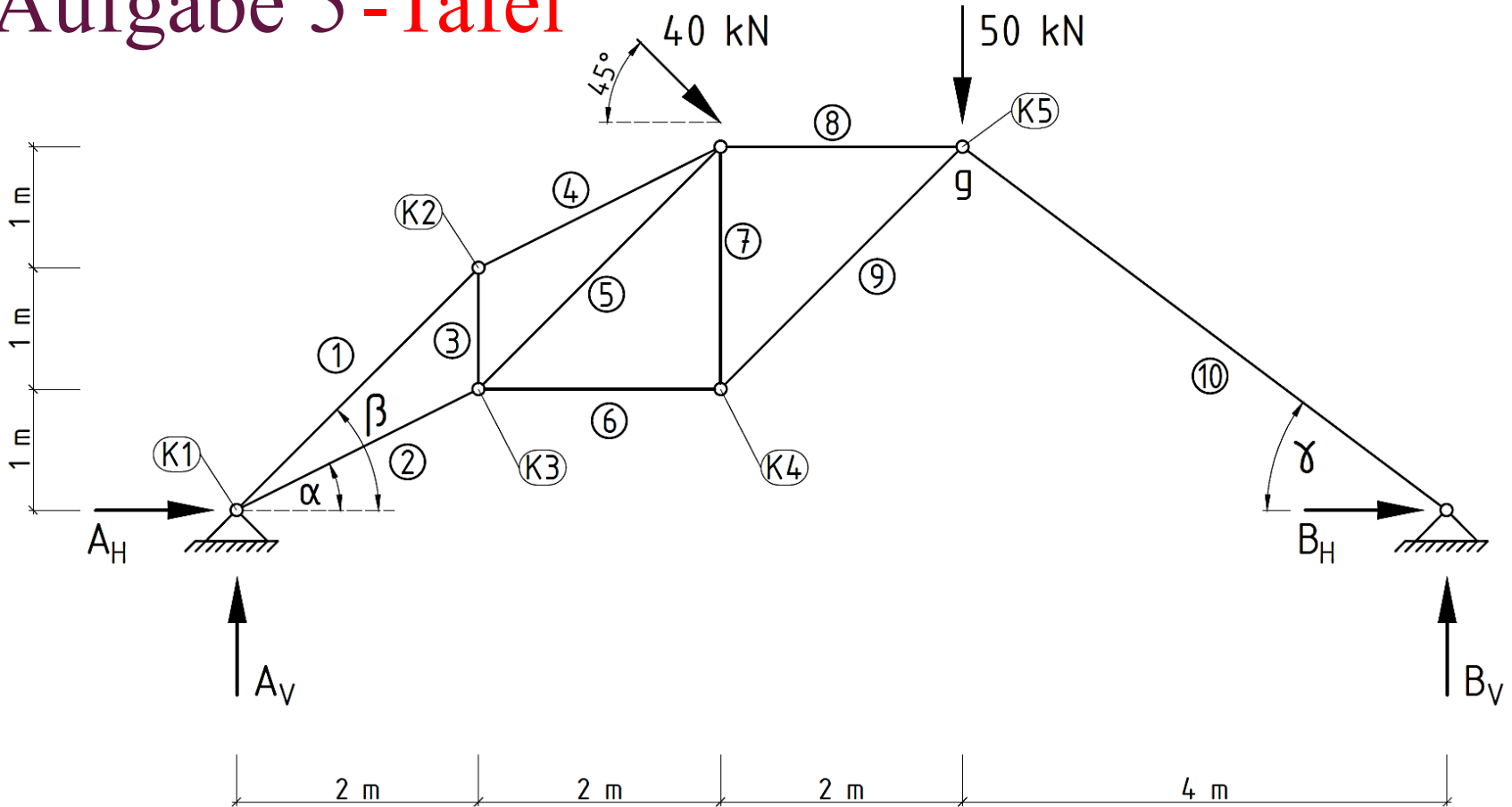


Aufgabe 4 - Tafel

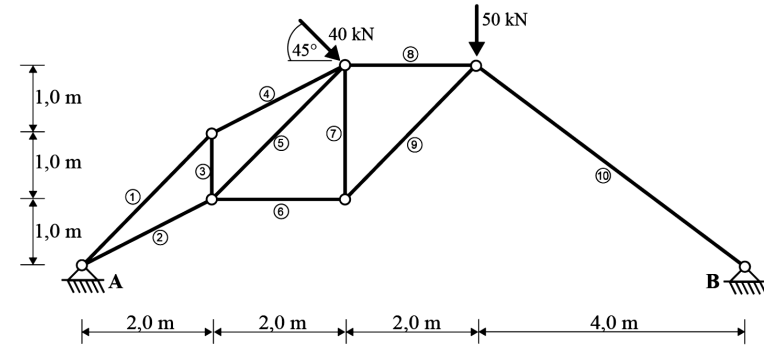
b)



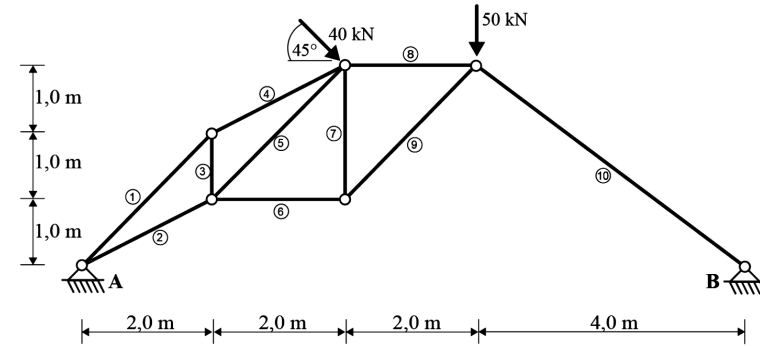
Aufgabe 5 - Tafel



Aufgabe 5 - Tafel

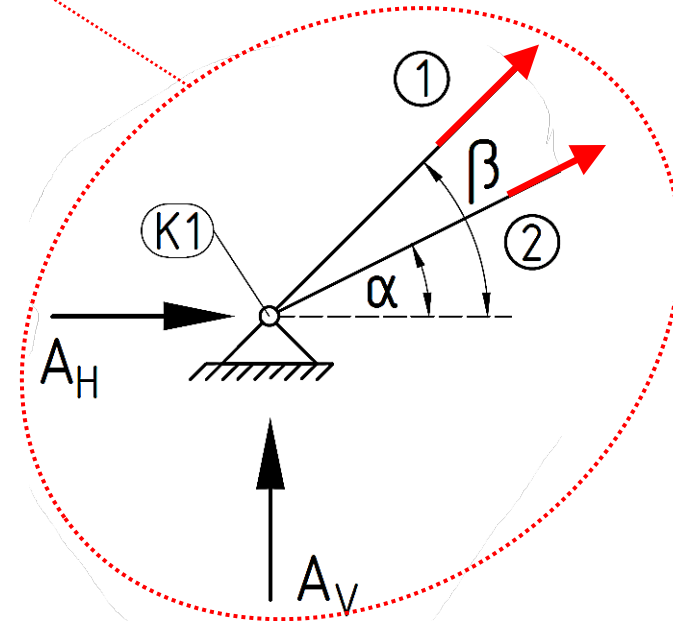
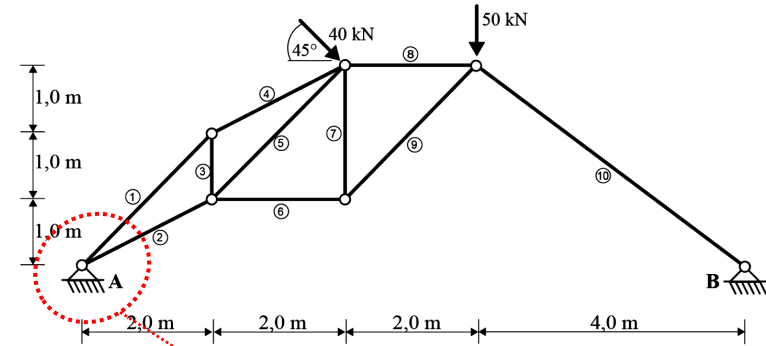


Aufgabe 5 - Tafel



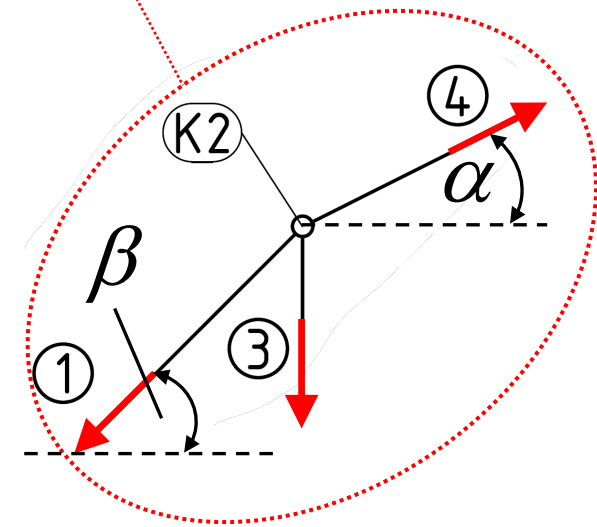
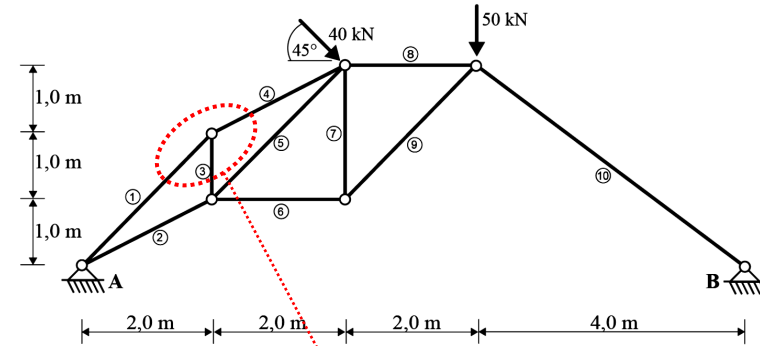
Aufgabe 5 - Tafel

K1:



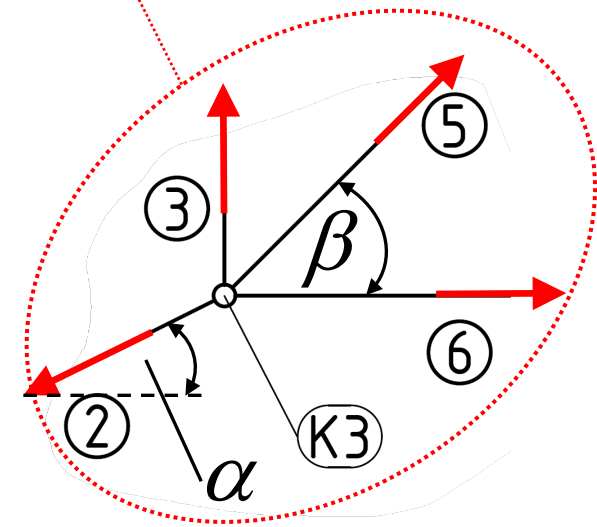
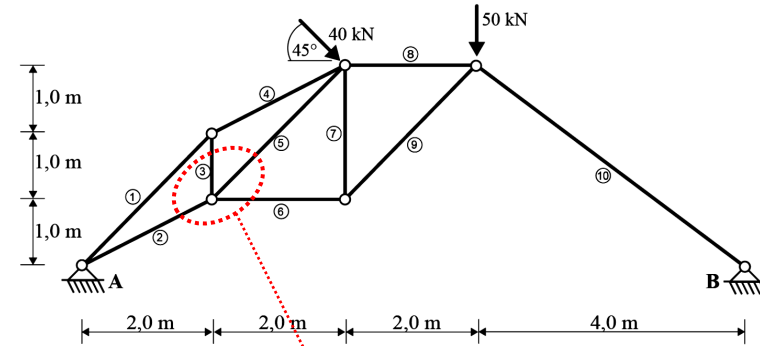
Aufgabe 5 - Tafel

K 2:



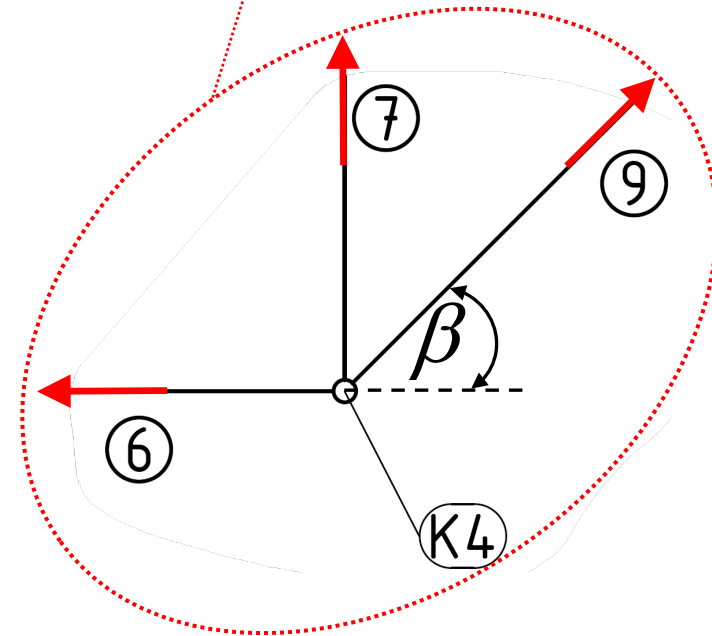
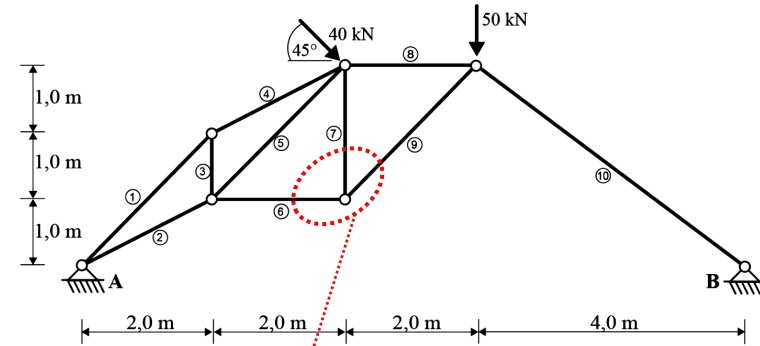
Aufgabe 5 - Tafel

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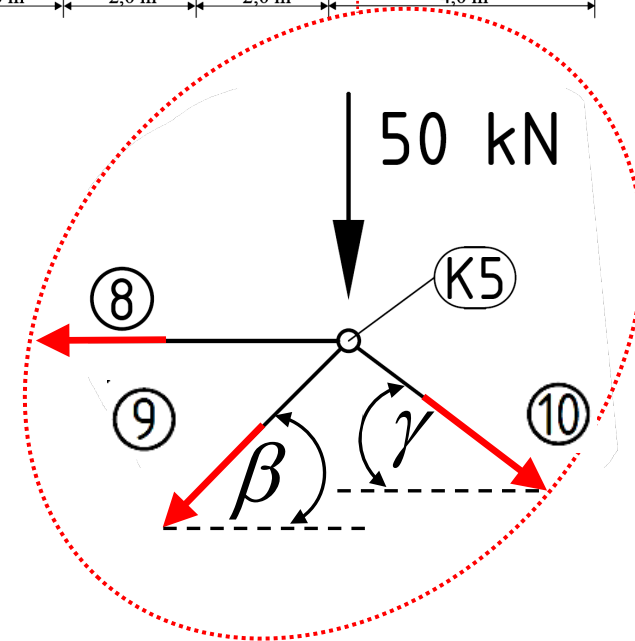
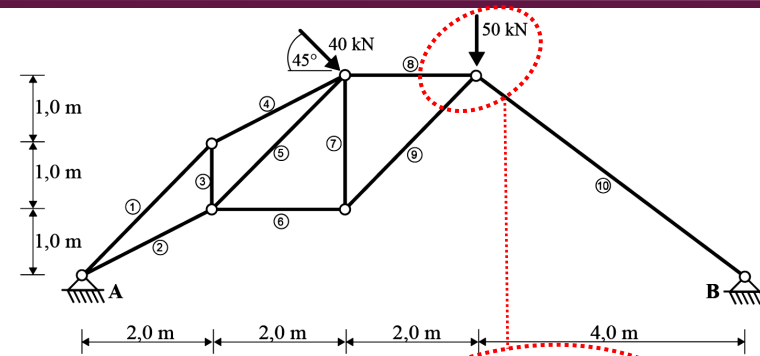
Aufgabe 5 - Tafel

K 4:



Aufgabe 5 - Tafel

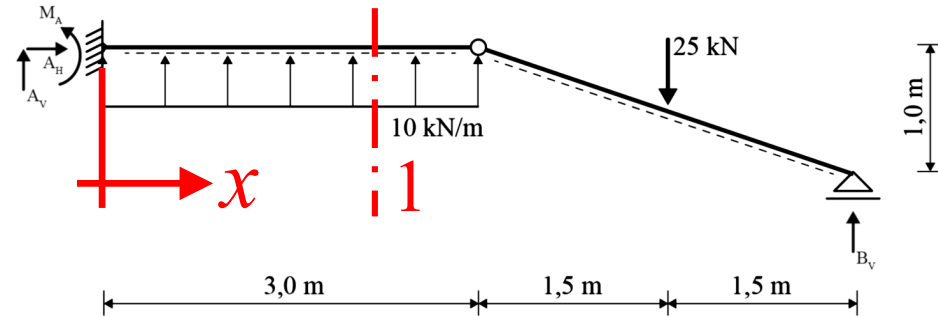
K5:



i	1	2	3	4	5	6	7	8	9	10
S_i	-26,6	-21,5	9,4	-21,1	-26,9	-0,2	0,2	-66,2	-0,3	-83,0

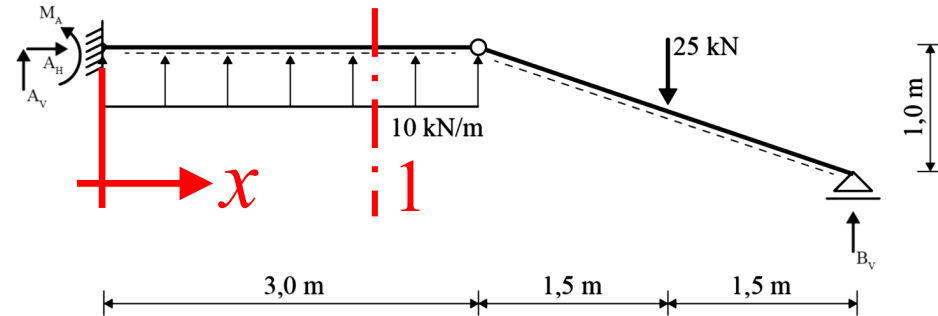
Aufgabe 6 - Tafel

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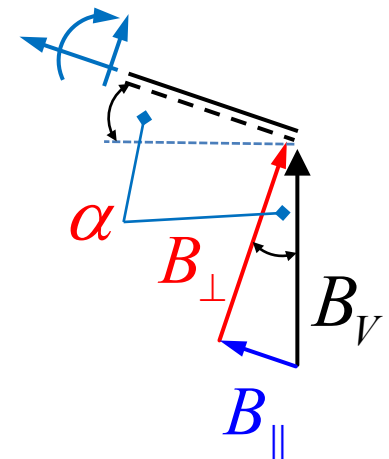
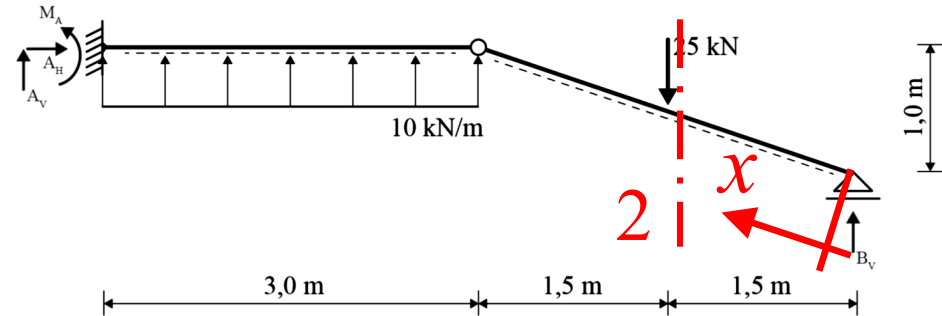
Aufgabe 6 - Tafel

Schnitt 1:



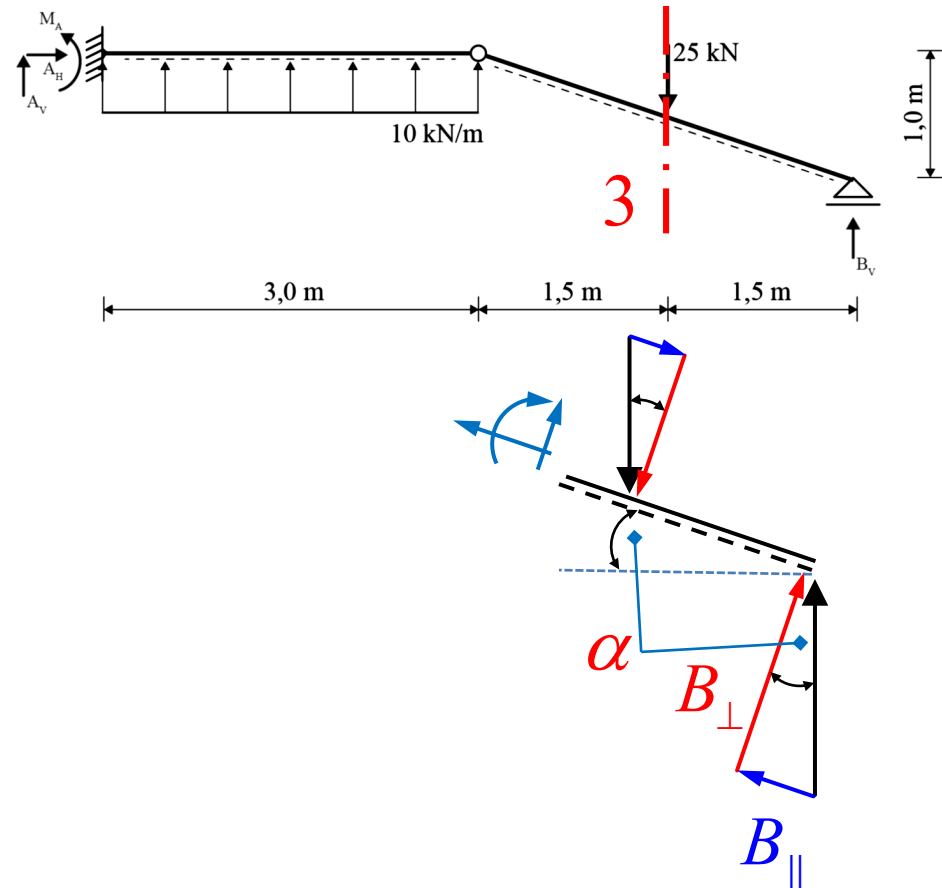
Aufgabe 6 - Tafel

Schnitt 2:

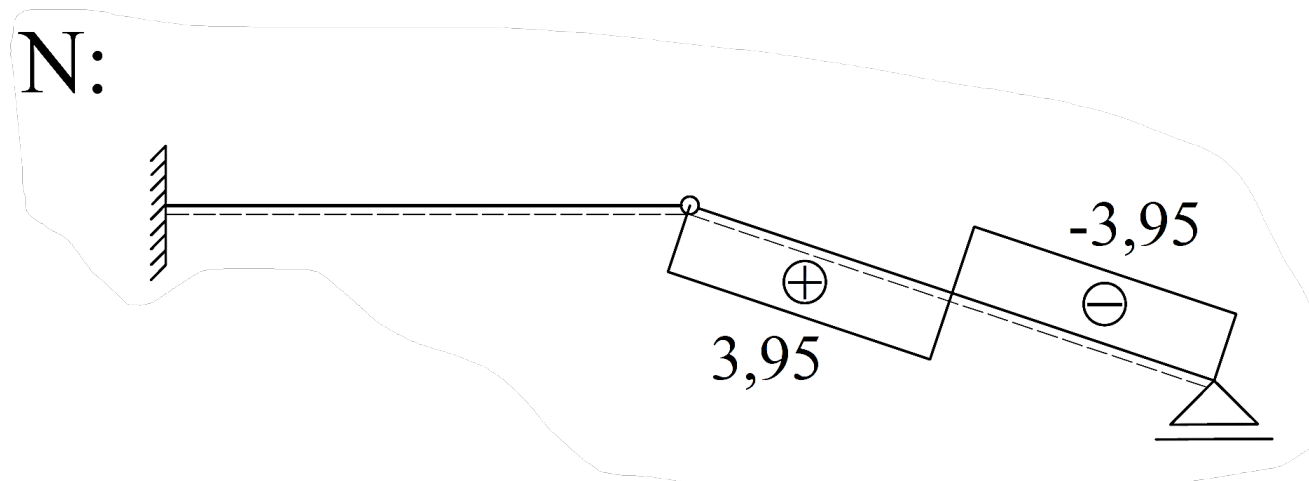


Aufgabe 6 - Tafel

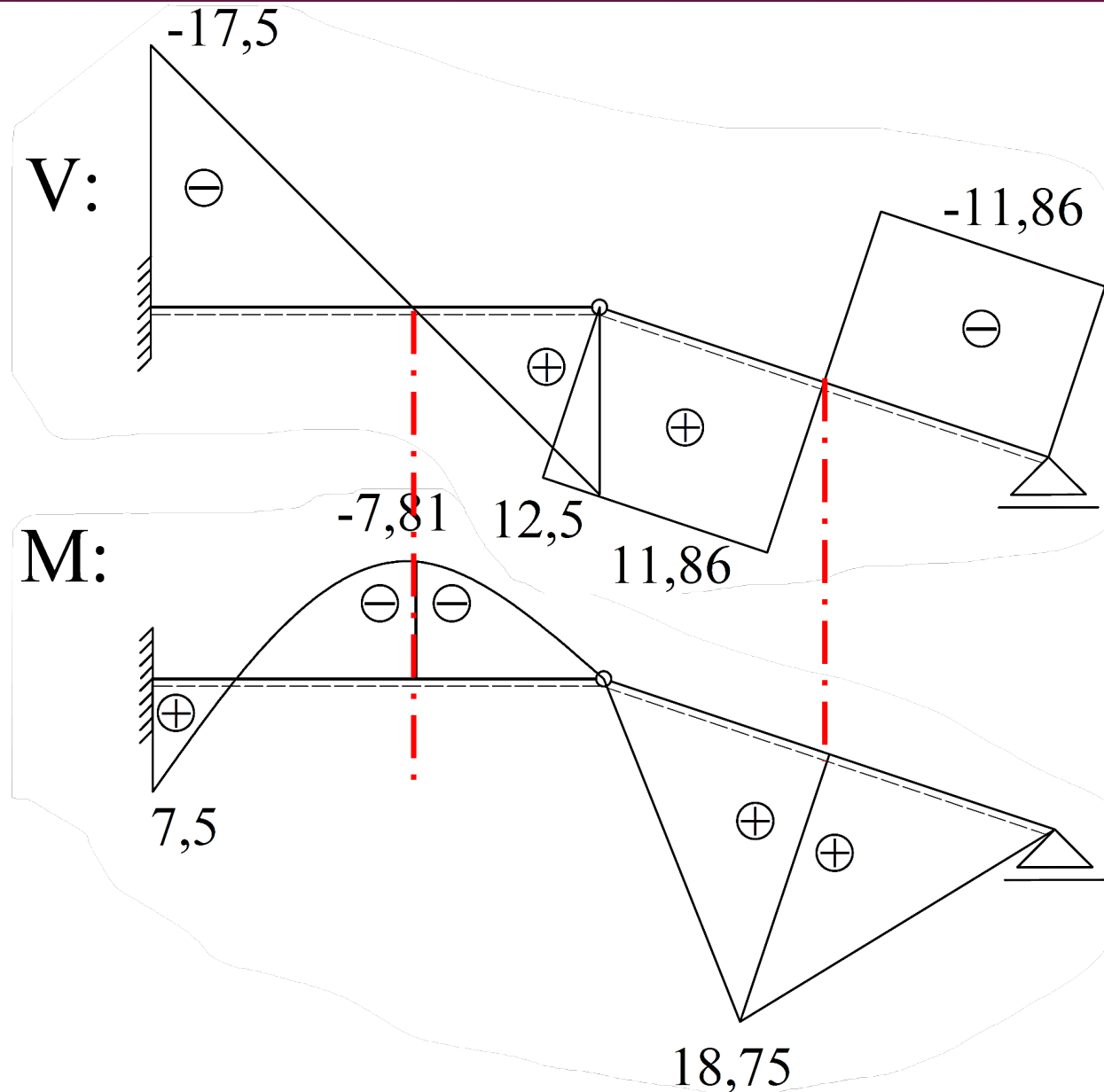
Schnitt 3:



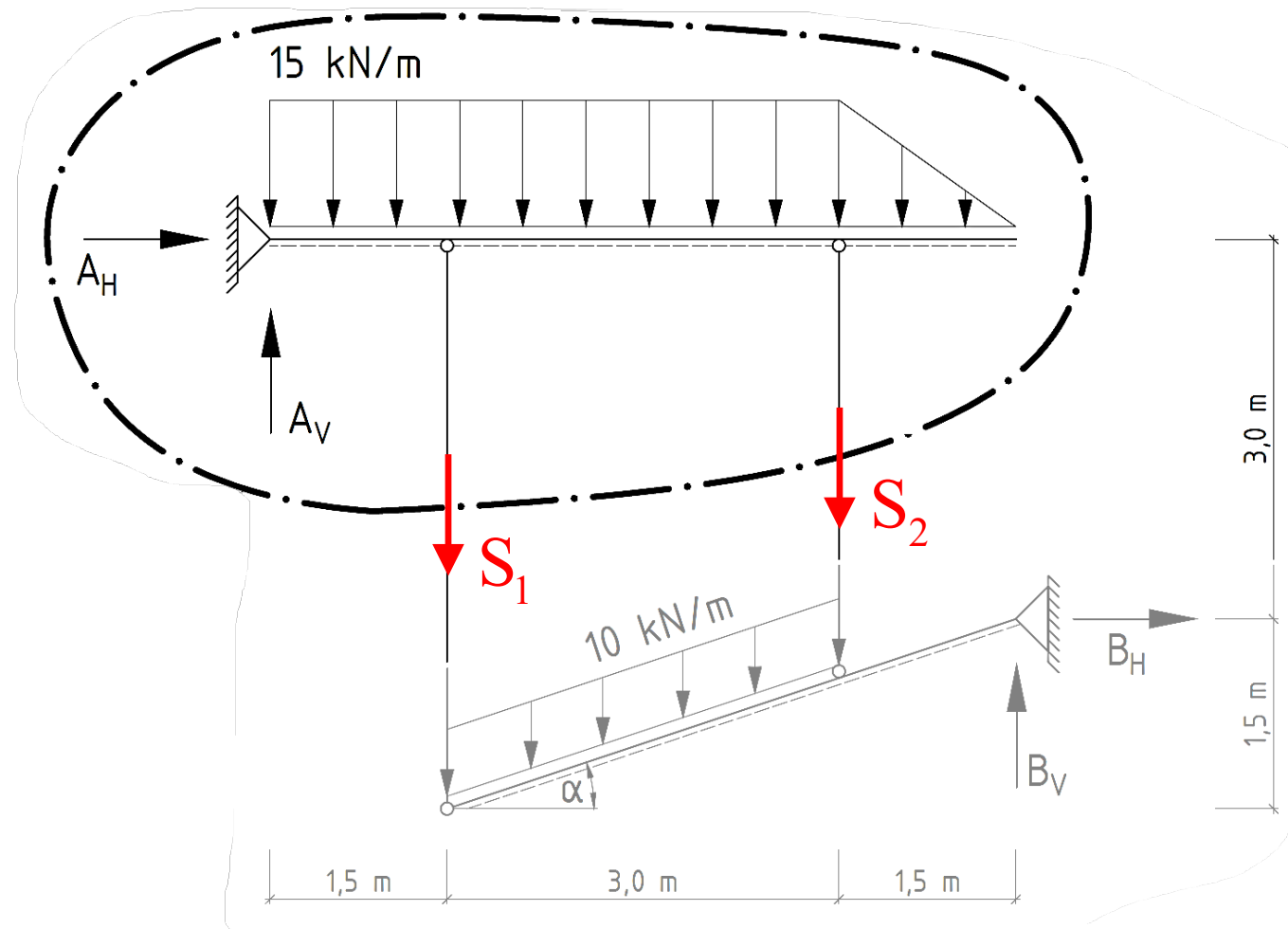
Aufgabe 6



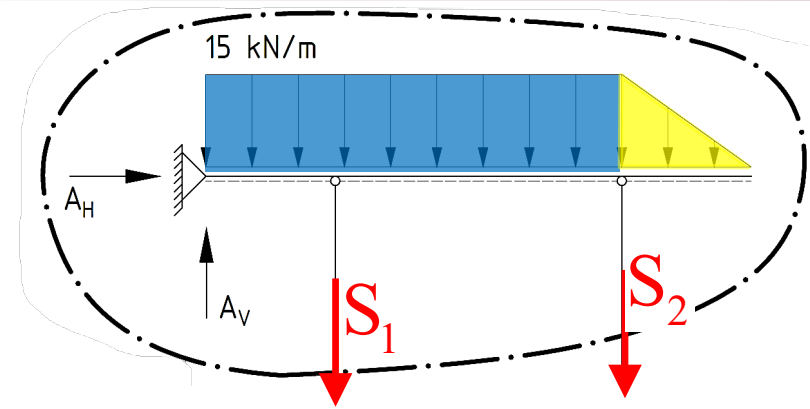
Aufgabe 6



Aufgabe 7-Tafel

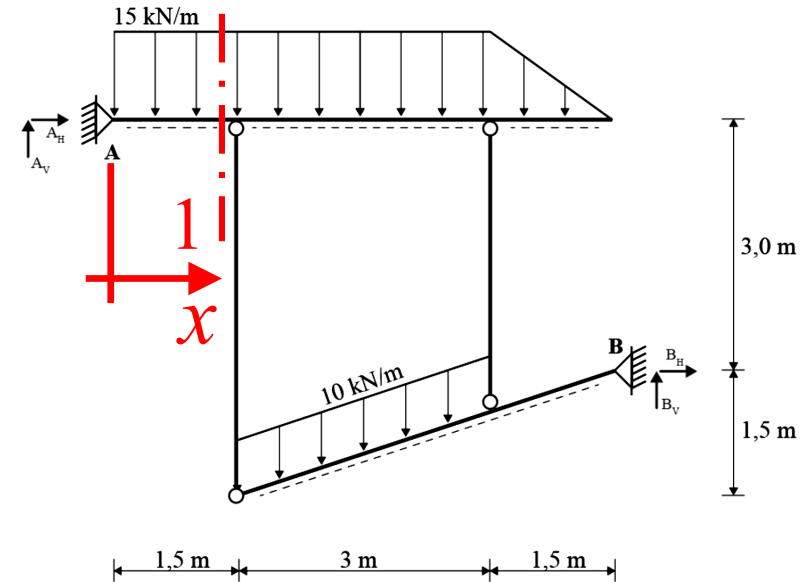


Aufgabe 7 - Tafel



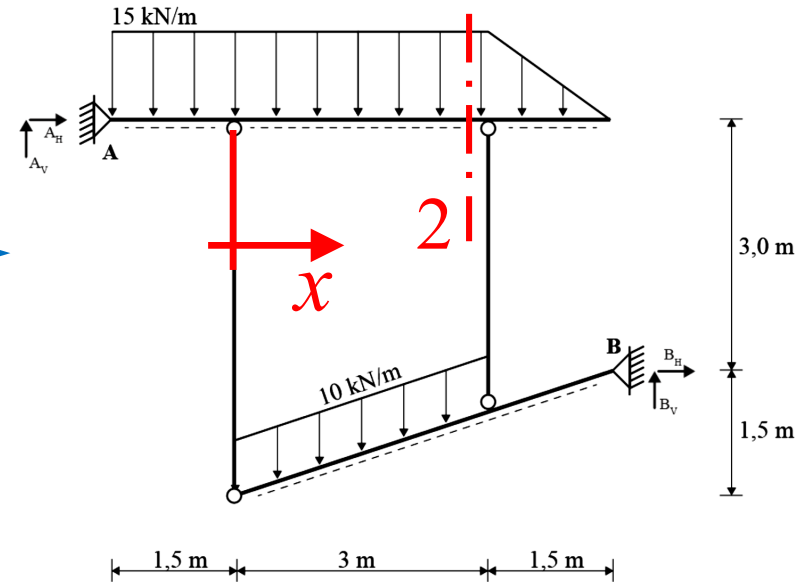
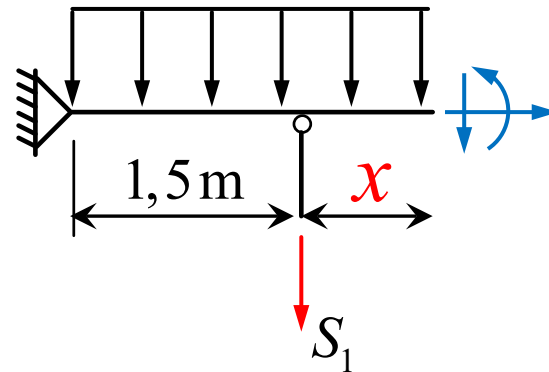
Aufgabe 7 - Tafel

Schnitt 1:



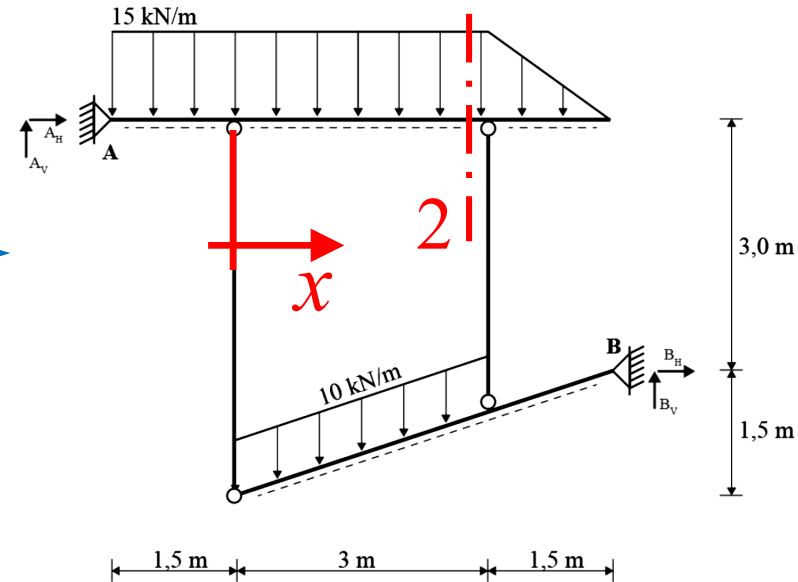
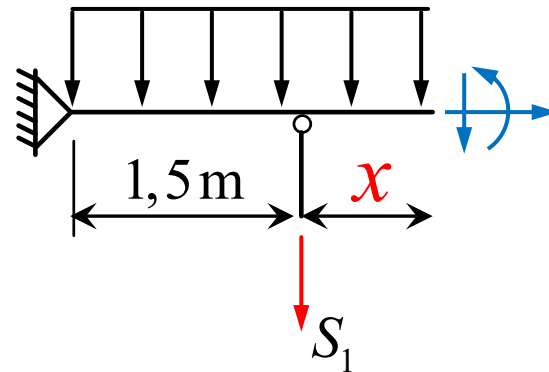
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Schnitt 2:



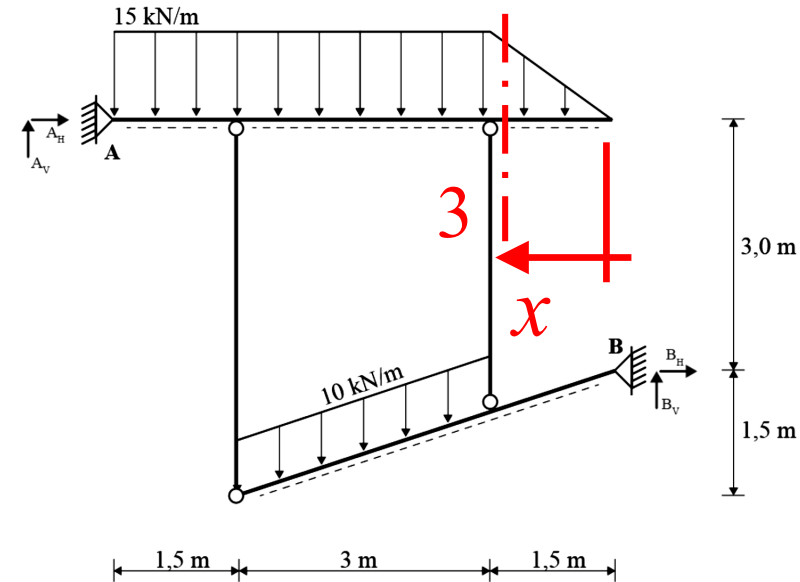
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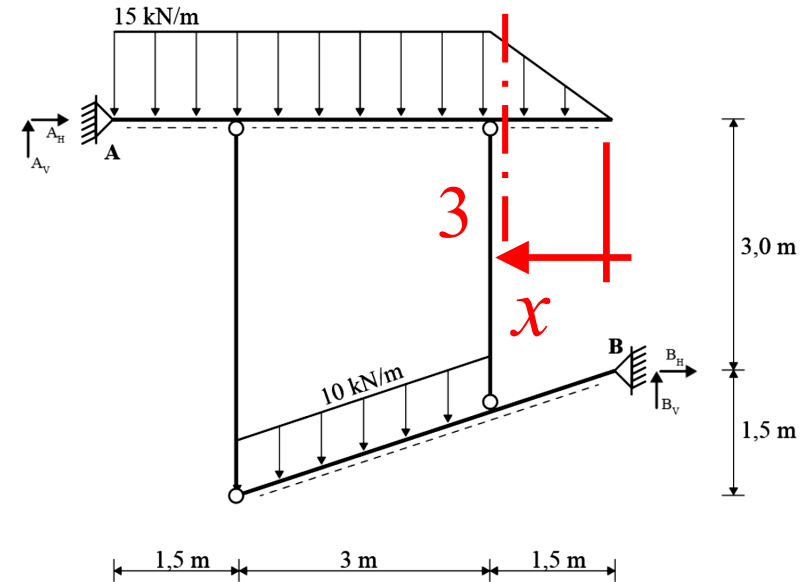
Aufgabe 7 - Tafel

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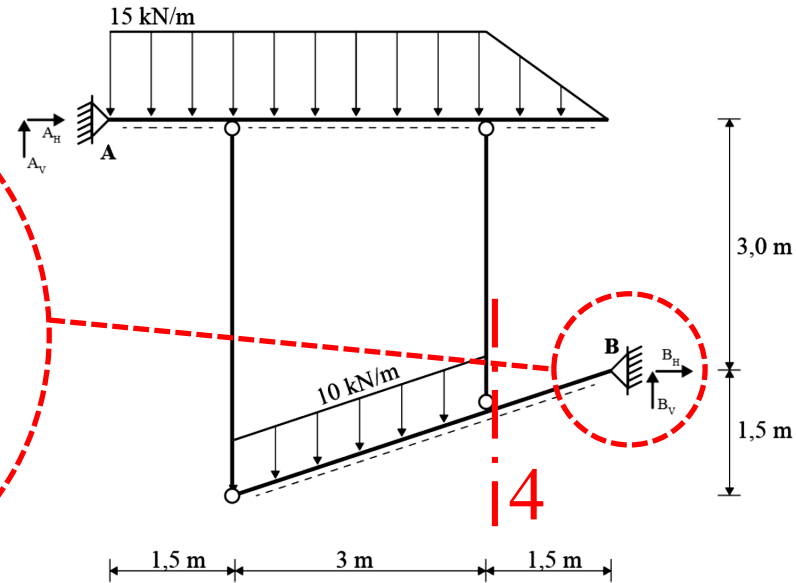
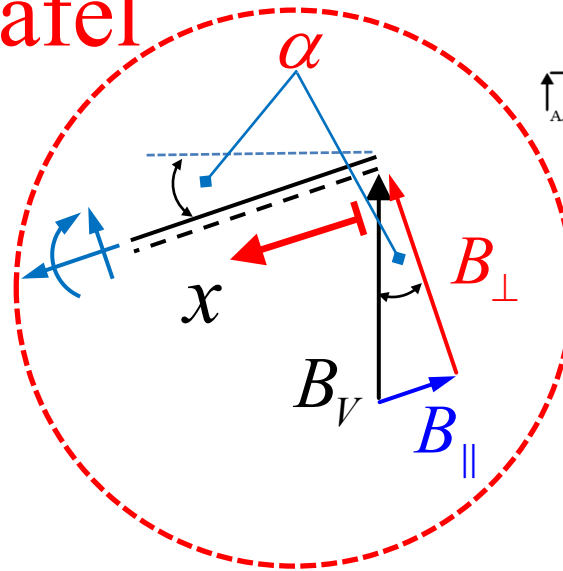
Aufgabe 7 - Tafel

Schnitt 3:



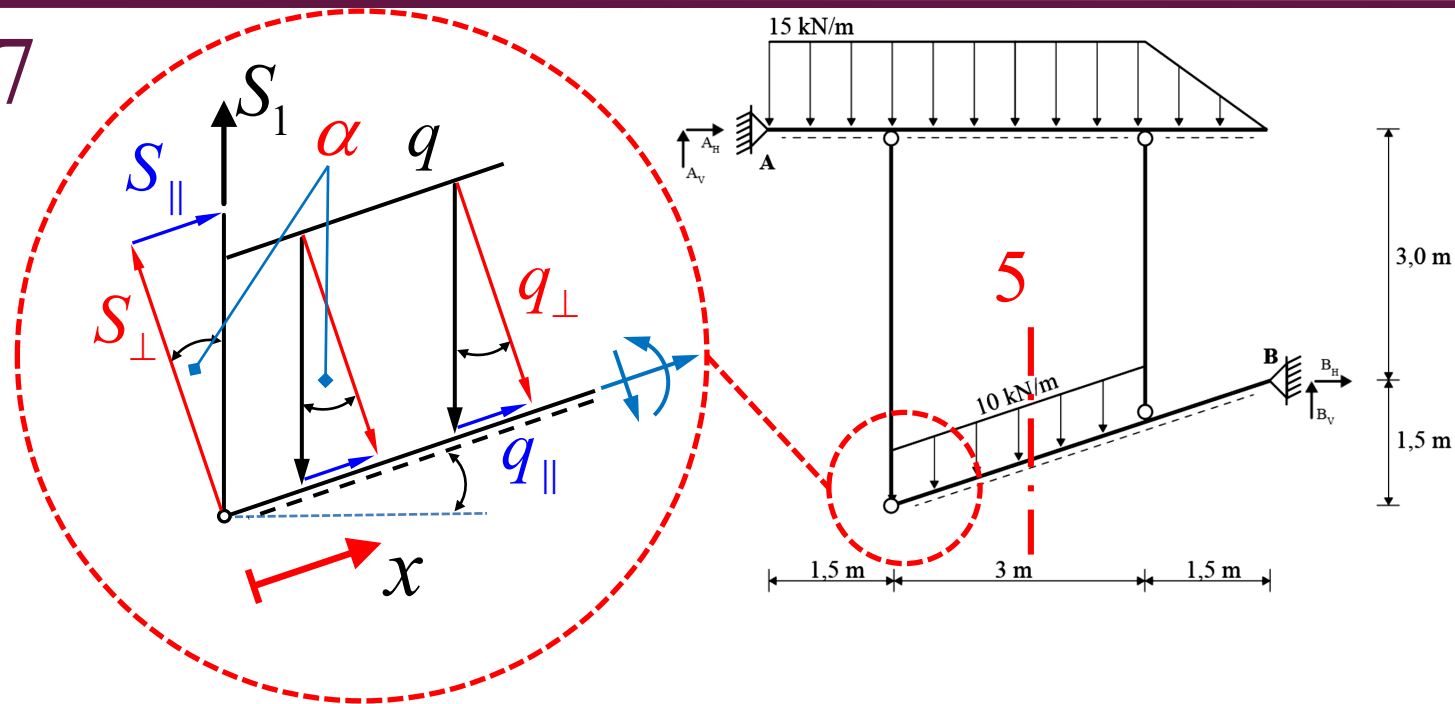
Aufgabe 7 - Tafel

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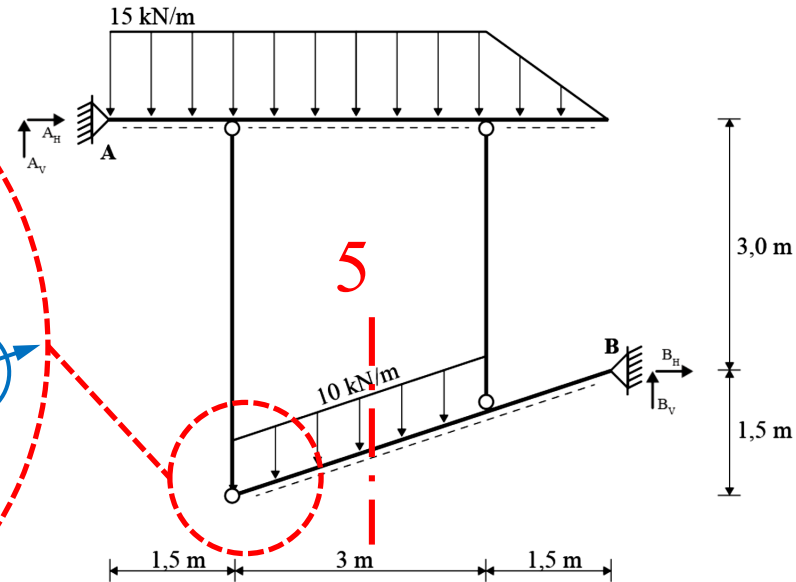
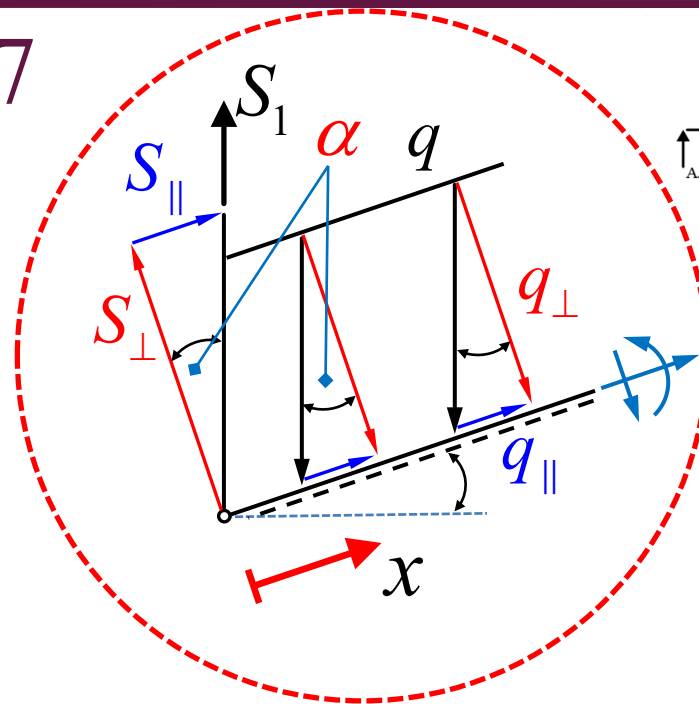
Aufgabe 7

Schnitt 5:



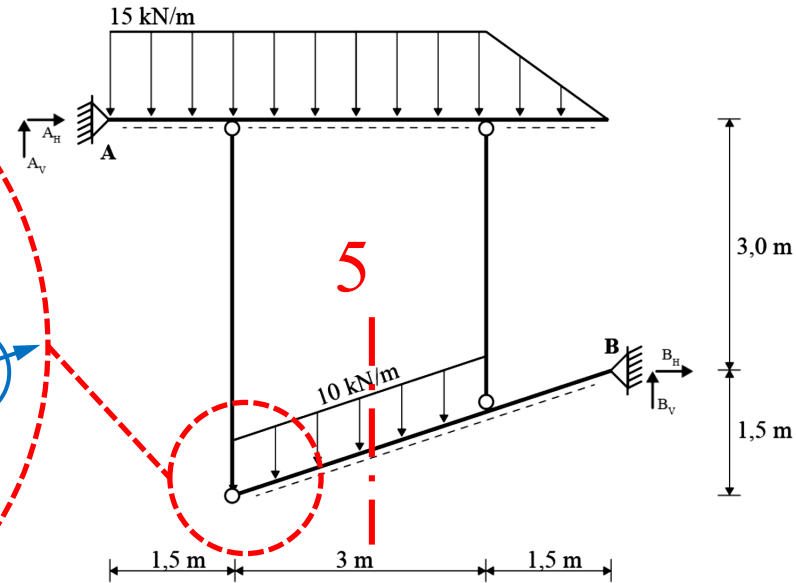
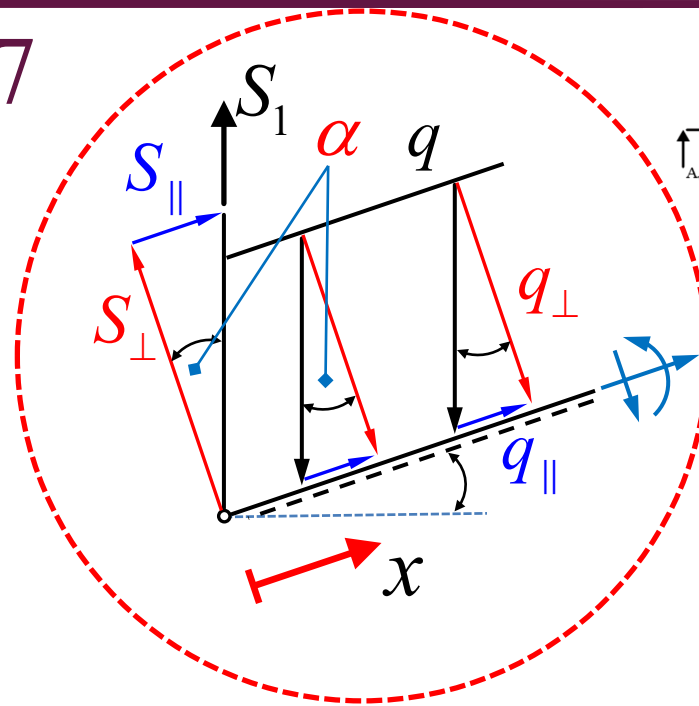
Aufgabe 7

Schnitt 5:

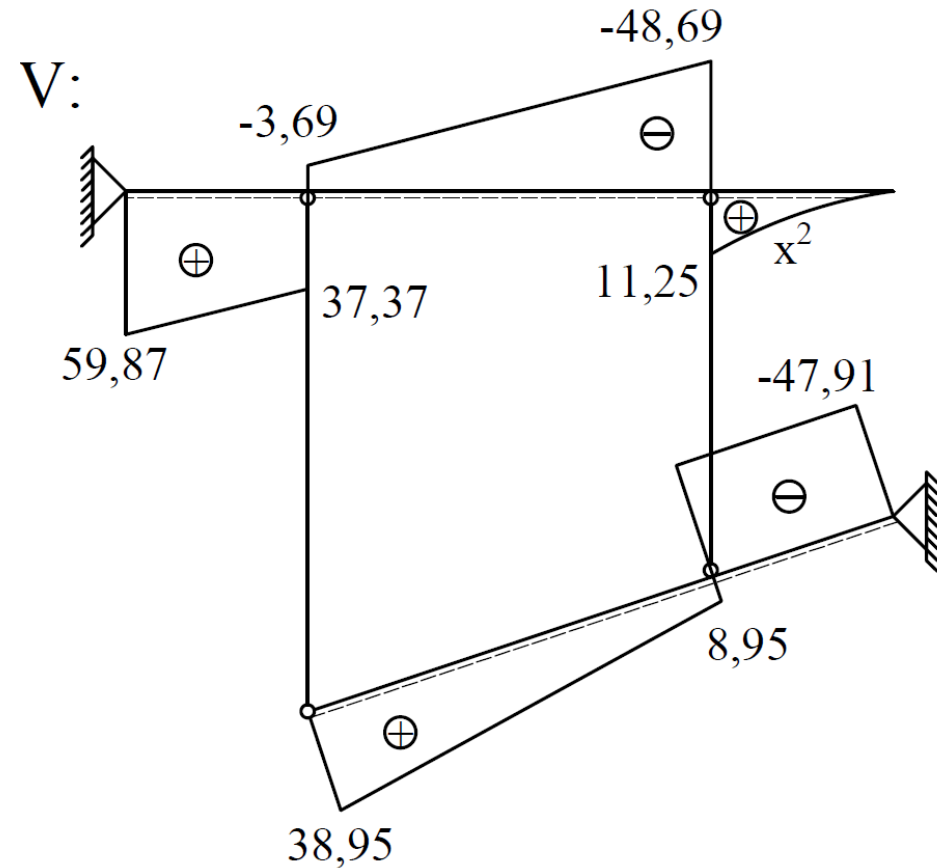
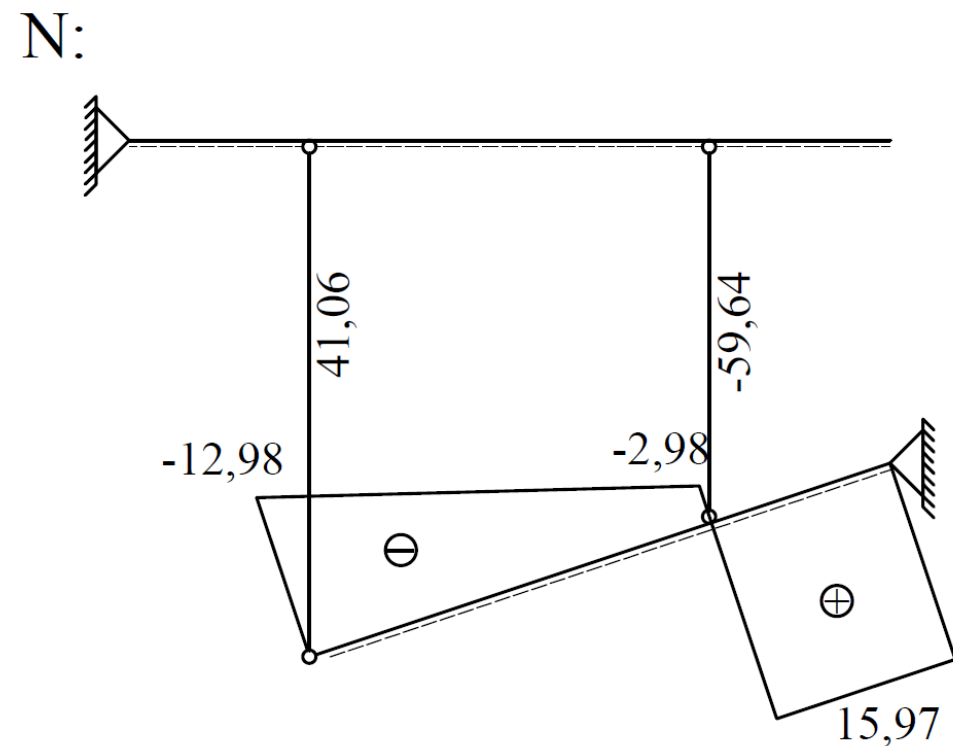


Aufgabe 7

Schnitt 5:



Aufgabe 7



Aufgabe 7

