

Reactiekrachten

$$\sum F_v = 0$$

$$R_a - R_b - (10 \text{ kN/m} \cdot 5 \text{ m}) = 0$$

$$\rightarrow R_a + R_b = 50 \text{ kN}$$

$$\sum M_A = 0$$

$$R_a \cdot 0 \text{ m} + (10 \text{ kN/m} \cdot 5 \text{ m}) \cdot 2,5 \text{ m} - R_b \cdot 8 \text{ m} = 0$$

$$\rightarrow 125 \text{ kNm} - R_b 8 \text{ m} = 0$$

$$\rightarrow R_b = \frac{125 \text{ kNm}}{8 \text{ m}} = 15,625 \text{ kN}$$

$$R_b = 15,625 \text{ kN}$$

$$R_a = 34,375 \text{ kN}$$

Dwarskrachten

$$\text{Gebied AC: } D = R_a - (10 \text{ kN/m} \cdot x \text{ m}) = 34,375 \text{ kN} - 10x \text{ kN}$$

$$\rightarrow x = 0 \text{ m: } D = 34,375 \text{ kN}$$

$$\rightarrow x = 2,5 \text{ m: } D = 9,375 \text{ kN}$$

$$\rightarrow x = 5 \text{ m: } D = -15,625 \text{ kN}$$

$$\text{Gebied CB: } D = R_a - F = 34,375 - (10 \text{ kN/m} \cdot 5 \text{ m})$$

$$= -15,625 \text{ kN}$$

Momenten

$$\text{Gebied AC: } M_b = (R_a \cdot x) - (10 \text{ kN/m} \cdot x) \cdot \frac{x}{2}$$

$$\rightarrow x = 0 \text{ m: } M_b = 0 \text{ kNm}$$

$$\rightarrow x = 2,5 \text{ m: } M_b = (34,375 \cdot 2,5 \text{ m}) - (10 \text{ kN/m} \cdot 2,5 \text{ m}) \cdot \frac{2,5 \text{ m}}{2} = 54,6875 \text{ kNm}$$

$$\rightarrow x = 5 \text{ m: } M_b = (34,375 \text{ kN} \cdot 5 \text{ m}) - (10 \text{ kN/m} \cdot 5 \text{ m}) \cdot \frac{5 \text{ m}}{2} = 46,875 \text{ kNm}$$

$$\text{Gebied CB: } M_b =$$

$$=$$

$$\rightarrow x = 5 \text{ m: } M_b =$$

$$\rightarrow x = 8 \text{ m: } M_b =$$