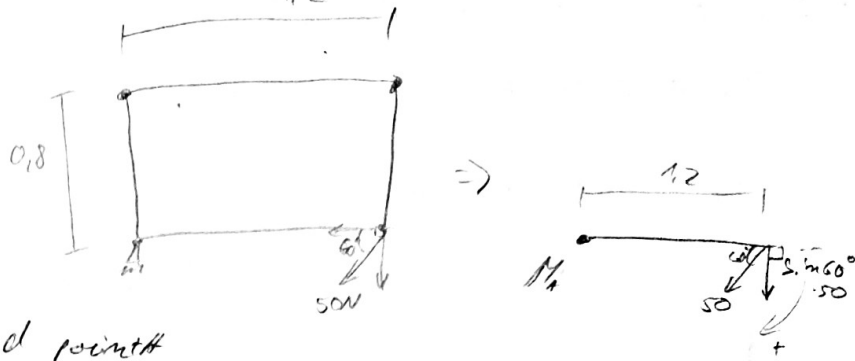


35d) Define the moment around point A

$$M_A = 50 \cdot \sin 60^\circ \cdot 1,2$$

$$\underline{M_A = 52 \text{ Nm}}$$



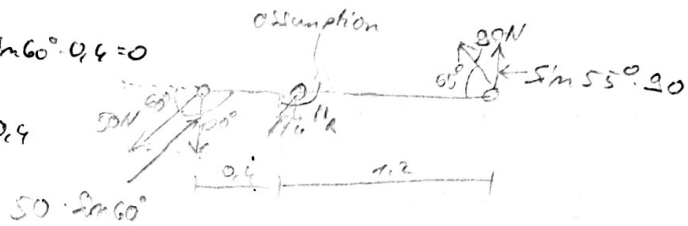
36a) Define the moment around point A

$$\sum M = 0: M_A - \sin 55^\circ \cdot 50 \cdot 1,2 - 50 \sin 60^\circ \cdot 0,4 = 0$$

$$M_A = + \sin 55^\circ \cdot 50 \cdot 1,2 + 50 \sin 60^\circ \cdot 0,4$$

$$M_A = 106$$

$$\underline{M_A = 106 \text{ Nm}}$$



38c), 38d), 38g) Define the forces so the system is in balance. 600N

$$+\circlearrowleft \sum M_A = 0: -600 \cdot a + \sin 45^\circ \cdot C \cdot 2a - \cos 45^\circ \cdot C \cdot a$$

$$C = \frac{600 \cdot a}{(2 \sin 45^\circ - \cos 45^\circ) \cdot a}$$

$$\text{since } \sin 45^\circ = \cos 45^\circ$$

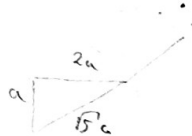
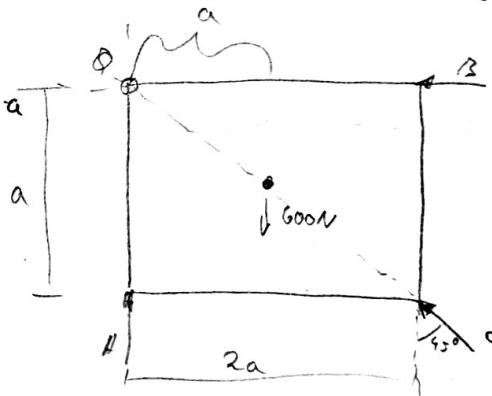
$$C = \frac{600}{\sin 45^\circ} = 849 \text{ N}$$

$$\sum F_x = 0: -\cos 45^\circ \cdot 849 - B = 0 \Rightarrow B = -\cos 45^\circ \cdot 849$$

$$\underline{B = -600,3 \text{ N}}$$

$$\sum F_y = 0: \sin 45^\circ \cdot 849 + A = 0 \Rightarrow A = -\sin 45^\circ \cdot 849 + 600$$

$$\underline{A = +100 \text{ N}}$$



$$+\circlearrowleft \sum M_B = 0: -600 \cdot a - \cos 55^\circ \cdot B \cdot 2a + C \cdot 2a + \sin 55^\circ \cdot B \cdot a$$

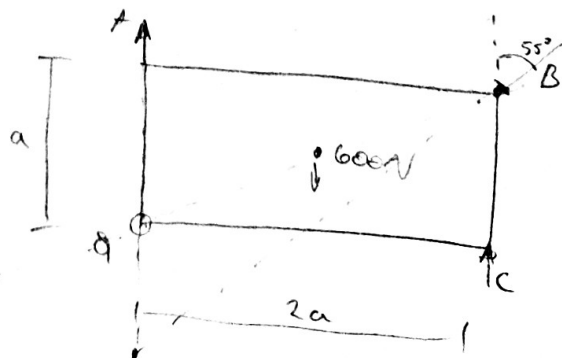
$$\Rightarrow C = \frac{600}{2} = 300 \text{ N}$$

$$\sum F_y = 0: C + A - \cos 55^\circ \cdot B = 0$$

$$C = -A + 600$$

$$\sum F_x = 0: \sin 55^\circ \cdot B = 0 \Rightarrow \underline{B = 0}$$

$$\underline{A = +300 \text{ N}}$$



38g)

$$\sum M_B = 0: -600 \cdot a + A \cdot a \cdot B + H \cdot 2a = 0$$

$$\sum F_x = 0: 0 = 0 \quad \checkmark$$

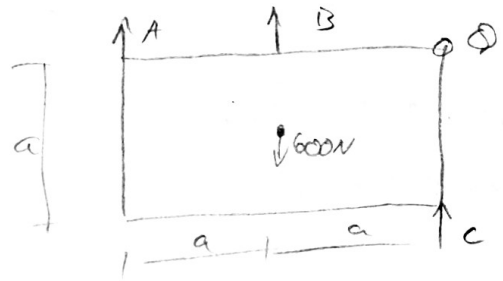
$$A = \frac{600 - B}{2}$$

$$\sum F_y = 0: C + A + B - 600 = 0 \Rightarrow$$

$$2C + 600 - B \cdot 2 = 0$$

$$B = 600 - 2C$$

only if we assume that C=0, B=600 and H=0.



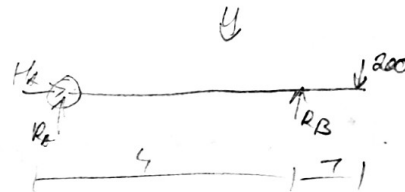
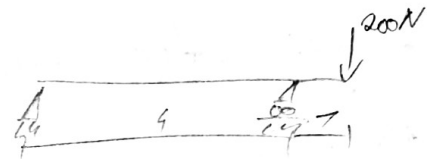
39g)

$$\sum M_A = R_B \cdot 4 - 200 \cdot 5 = 0$$

$$R_B = 250 \text{ N}$$

$$R_A = -200 + 250 = 50 \text{ N}$$

$$H_A = 0$$



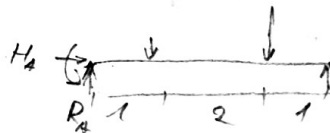
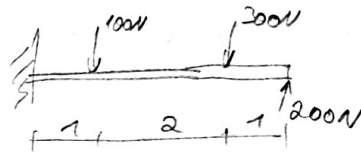
39a)

$$\sum M_A = 100 \cdot 1 - 3 \cdot 300 + 4 \cdot 200$$

$$M_A = 0 \text{ N}\cdot\text{m}$$

$$H_A = 0 \text{ N}$$

$$R_A = 300 + 100 - 200 = 200 \text{ N}$$



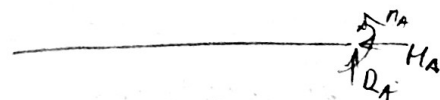
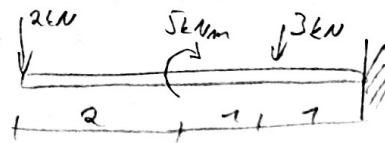
39b)

$$\sum M = 0: M_A + 3000 \cdot 1 - 5000 + 2000 \cdot 4 = 0$$

$$M_A = -6000 \text{ N}\cdot\text{m}$$

$$H_A = 0$$

$$R_A = 3000 + 2000 = 5000 \text{ N}$$



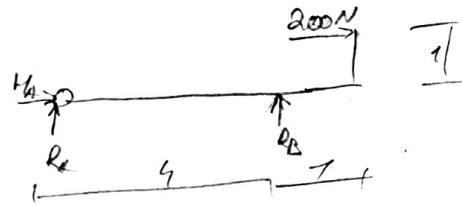
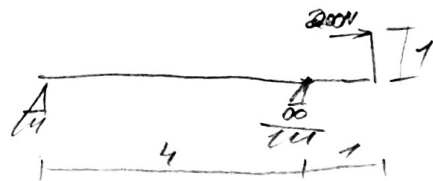
390)

$$\uparrow \sum M_A = 0: R_B \cdot 4 - 200 = 0 \Rightarrow \underline{R_B = 50N}$$

$$\rightarrow \sum F_x = 0: H_A + 200 = 0 \Rightarrow \underline{H_A = -200N}$$

$$\uparrow \sum F_y = 0: R_A + R_B = 0$$

$$\underline{R_A = -50N}$$



42)

$$\uparrow \sum M_A = 0: R_A \cdot 0,6 - 1 \cdot 22,1 + R_B \cdot 1,5 = 0$$

$$\rightarrow \sum F_x = 0: R_A + R_B - 22,1 = 0$$

$$\uparrow \sum F_y = 0: -H_A = 0 \Rightarrow H_A = 0$$

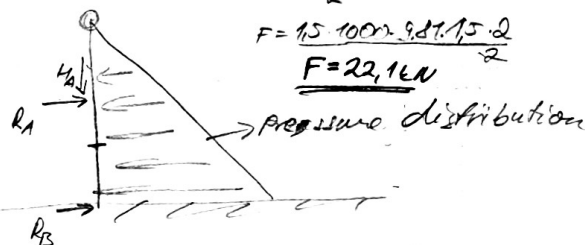
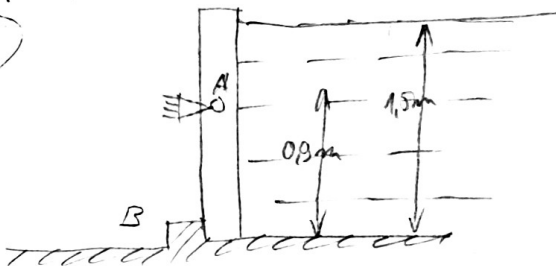
$$R_A = 44,15 - R_B$$

$$0,6(44,15 - R_B) - 22,1 + R_B \cdot 1,5 = 0$$

$$R_B = 19,66N$$

$$\underline{R_B = 19,66N}$$

$$\underline{R_A = 24,49N}$$



$$F = \frac{1}{2} \cdot S \cdot h \cdot \rho \cdot g \cdot h$$

$$F = \frac{1}{2} \cdot 1 \cdot 1 \cdot 1000 \cdot 9,81 \cdot 1,5^2 = 22,1kN$$

$$\underline{F = 22,1kN}$$

Pressure distribution

Probably wrongly worked with the pressure.

$$R_A = 22,1 - R_B$$

$$0,6(22,1 - R_B) - 22,1 + R_B \cdot 1,5 = 0$$

$$\underline{R_B = 9,8kN}$$

$$\underline{R_A = 12,3kN}$$

