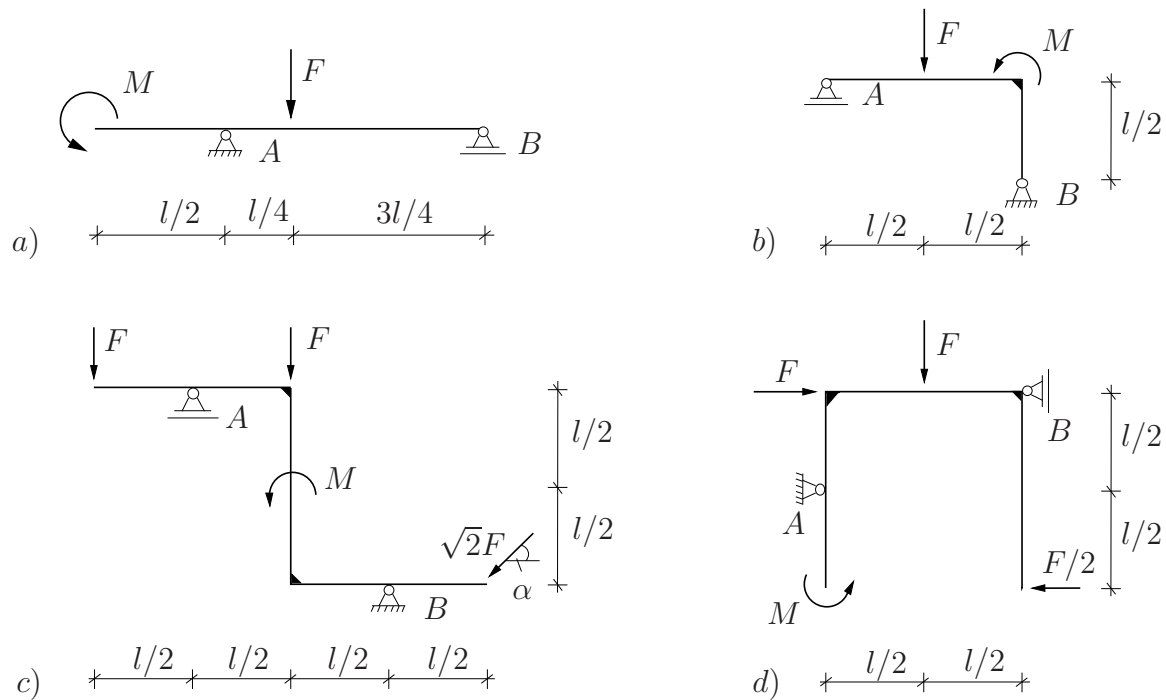
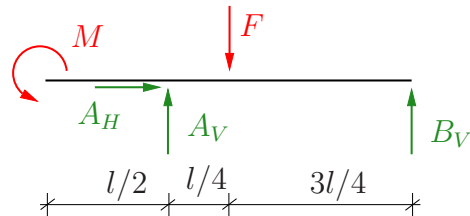


Aufgabe 3

Bestimmen Sie die Auflagerreaktionen der dargestellten Systeme.

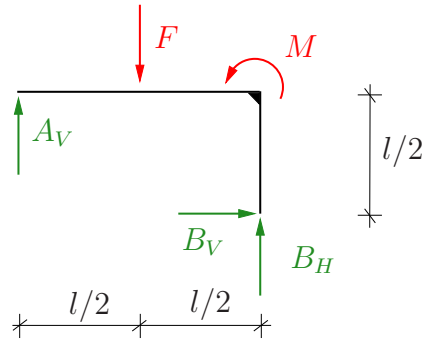
**Geg.:** $F, M, l, \alpha = 45^\circ$.**Lösung****1. System a)**

$$\rightarrow \Sigma H : \quad A_H = 0$$

$$\curvearrowright \Sigma M_A : \quad F \frac{l}{4} - B_V \cdot l - M = 0 \quad \rightarrow B_V = \frac{1}{4}F - \frac{M}{l}$$

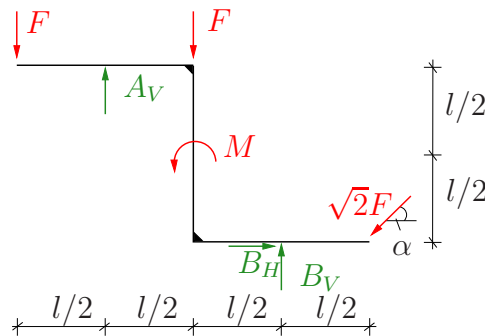
$$\uparrow \Sigma V : \quad A_V + B_V - F = 0 \quad \rightarrow A_V = \frac{3}{4}F + \frac{M}{l}$$

2. System b)



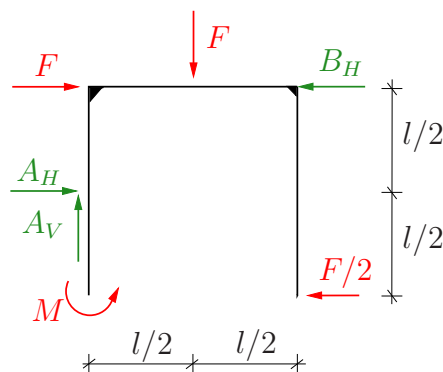
$$\begin{aligned}
 \rightarrow \Sigma H : & \quad B_H = 0 \\
 \curvearrowright \Sigma M_B : & \quad A_V \cdot l - F \cdot \frac{l}{2} - M = 0 & \rightarrow A_V = \frac{1}{2}F + \frac{M}{l} \\
 \uparrow \Sigma V : & \quad A_V + B_V - F = 0 & \rightarrow B_V = \frac{1}{2}F - \frac{M}{l}
 \end{aligned}$$

3. System c)



$$\begin{aligned}
 \rightarrow \Sigma H : & \quad B_H - F = 0 & \rightarrow B_H = F \\
 \curvearrowright \Sigma M_B : & \quad A_V \cdot l - F \cdot \frac{3}{2}l - F \cdot \frac{l}{2} - M + F \cdot \frac{l}{2} & \rightarrow A_V = \frac{3}{2}F + \frac{M}{l} \\
 \uparrow \Sigma V : & \quad A_V + B_V = 3F & \rightarrow B_V = \frac{3}{2}F - \frac{M}{l}
 \end{aligned}$$

4. System d)



$$\begin{aligned}
 \uparrow \Sigma V : & \quad A_V - F = 0 & \rightarrow A_V = F \\
 \curvearrowright M_A : & \quad -B_H \cdot \frac{l}{2} + \frac{F}{2} \cdot \frac{l}{2} - M + F \cdot \frac{l}{2} + F \cdot \frac{l}{2} = 0 & \rightarrow B_H = \frac{5}{2}F - 2\frac{M}{l} \\
 \rightarrow \Sigma H : & \quad A_H + F - B_H - \frac{F}{2} = 0 & \rightarrow A_H = 2F - 2\frac{M}{l}
 \end{aligned}$$