4.12 $F_{Ax} = 300\ \text{N}$, $F_{Ay} = -300\ \text{N}$, $F_{Az} = 500\ \text{N}$, $F_A = 655{,}7\ \text{N}$,
$S_1 = 300\ \text{N}$, $S_2 = 300\ \text{N}$, $S_3 = 800\ \text{N}$.

4.13 $S_1 = 541{,}8\ \text{N}$, $S_2 = 210{,}2\ \text{N}$,
$F_{Ax} = -46{,}15\ \text{N}$, $F_{Ay} = 565{,}4\ \text{N}$, $F_{Az} = 207{,}7\ \text{N}$, $F_A = 604{,}1\ \text{N}$.

4.14 $F_S = 669{,}2\ \text{N}$, $F_{Ax} = 267{,}7\ \text{N}$, $F_{Ay} = 535{,}3\ \text{N}$, $F_{Az} = 700{,}8\ \text{N}$, $F_A = 921{,}5\ \text{N}$,
$F_{Bx} = 0$, $F_{Bz} = 0$.

4.15 $F_B = 169{,}9\ \text{N}$, $F_S = 277{,}5\ \text{N}$.

4.16 $S_1 = 250\ \text{N}$, $S_2 = -175\ \text{N}$, $S_3 = 375\ \text{N}$, $S_4 = 0$, $S_5 = 250\ \text{N}$, $S_6 = -350\ \text{N}$.

4.17 $F_{AC} = F_{BC} = 240\ \text{N}$, $F_{CD} = -1046\ \text{N}$.

4.18 $F_{Ax} = 1{,}061\ \text{kN}$, $F_{Ay} = -2{,}121\ \text{kN}$, $F_{Az} = -1{,}5\ \text{kN}$, $F_A = 2{,}806\ \text{kN}$,
$F_{Bx} = F_{Bz} = 0$, $F_S = 2{,}806\ \text{kN}$.

4.19 $F_{Ax} = -2{,}30\ \text{kN}$, $F_{Ay} = 7{,}5\ \text{kN}$, $F_{Az} = -1{,}422\ \text{kN}$, $F_A = 7{,}926\ \text{kN}$,
$S_1 = 2{,}115\ \text{kN}$, $S_2 = 5{,}192\ \text{kN}$.

4.20 $F_{Ax} = -0{,}866\ \text{kN}$, $F_{Ay} = 0{,}5\ \text{kN}$, $F_{Az} = 1\ \text{kN}$, $F_{Bx} = 0\ \text{kN}$, $F_{Bz} = -2\ \text{kN}$, $S = 1{,}414\ \text{kN}$.

4.21 $F_{Ax} = -1\ \text{kN}$, $F_{Ay} = 0$, $F_{Az} = 1{,}732\ \text{kN}$, $M_{Ax} = 6{,}928\ \text{kN}\cdot\text{m}$, $M_{Ay} = 4{,}196\ \text{kN}\cdot\text{m}$,
$M_{Az} = 4\ \text{kN}\cdot\text{m}$.

4.22 $F_{Ax} = 0$, $F_{Bx} = 0$, $F_{Az} = 250\ \text{N}$, $F_{Bz} = 1250\ \text{N}$, $F_{Cz} = -500\ \text{N}$, $F_{Cy} = 0$.

4.23 $F = 461{,}9\ \text{N}$, $F_B = 1139\ \text{N}$, $F_A = 122{,}9\ \text{N}$.

4.24 $F_{Ax} = 100\ \text{N}$, $F_{Ay} = 50\ \text{N}$, $F_{Az} = 75\ \text{N}$, $F_A = 135\ \text{N}$,
$F_{By} = 250\ \text{N}$, $F_{Bz} = 75\ \text{N}$, $F_B = 261\ \text{N}$, $F_S = 350\ \text{N}$.

4.25 $S_1 = 3{,}29\ \text{kN}$, $S_2 = 1{,}5\ \text{kN}$, $F_{Ax} = 0$, $F_{Ay} = 2{,}76\ \text{kN}$, $F_{Az} = 0{,}095\ \text{kN}$.

4.26 $F_{Ax} = 0$, $F_{Az} = 0{,}4\ \text{kN}$, $F_{Bx} = 0$, $F_{Bz} = -0{,}93\ \text{kN}$, $F_S = 1{,}53\ \text{kN}$.

4.27 $F_{Ax} = 2{,}8\ \text{kN}$, $F_{Ay} = 0{,}58\ \text{kN}$, $F_{Az} = 6{,}50\ \text{kN}$, $S_1 = -2{,}89\ \text{kN}$, $S_2 = 5{,}19\ \text{kN}$.

4.28 $F_{Ax} = F_{Ay} = F_{Az} = F_{Bz} = 1\ \text{kN}$, $F_A = 1{,}732\ \text{kN}$, $F_{Bx} = 0$, $F_S = 1{,}732\ \text{kN}$.

4.29 $F_{Ax} = F_{Az} = 0$, $F_{Ay} = 4\ \text{kN}$, $F_{Bx} = 4\ \text{kN}$, $F_{Bz} = 1\ \text{kN}$, $F_S = 5657\ \text{N}$.

4.30 $F_{Ax} = 0$, $F_{Ay} = -1{,}732\ \text{kN}$, $F_{Az} = 1\ \text{kN}$,
$M_{Ax} = -1{,}2\ \text{kN}\cdot\text{m}$, $M_{Ay} = -5\ \text{kN}\cdot\text{m}$, $M_{Az} = -3{,}46\ \text{kN}\cdot\text{m}$.

4.31 $F_{Ax} = -500\ \text{N}$, $F_{Ay} = 1000\ \text{N}$, $F_{Az} = 0$,
$M_{Ax} = 125\ \text{N}\cdot\text{m}$, $M_{Ay} = 0$, $M_{Az} = 250\ \text{N}\cdot\text{m}$.

4.32 $S_1 = 0$, $S_2 = 4{,}95\ \text{kN}$, $S_3 = 2{,}4\ \text{kN}$, $F_{Ax} = 1{,}125\ \text{kN}$, $F_{Ay} = 5\ \text{kN}$, $F_{Az} = 2\ \text{kN}$.

4.33 $S_1 = -9\ \text{kN}$, $S_2 = 9{,}48\ \text{kN}$, $S_3 = 0$, $F_{Ax} = F_{Ay} = F_{Az} = 0$.

4.34 $F_{Ax} = 2\ \text{kN}$, $F_{Ay} = 4\ \text{kN}$, $F_{Az} = 0$, $S_1 = 6{,}298\ \text{kN}$, $S_2 = -2{,}828\ \text{kN}$, $S_3 = 0$.

4.35 $F_S = 6{,}5\ \text{kN}$, $F_{Ax} = 9{,}63\ \text{kN}$, $F_{Ay} = 4{,}25\ \text{kN}$, $F_A = 10{,}53\ \text{kN}$.

4.36 $F_S = 30\ \text{N}$, $F_{Bx} = -26\ \text{N}$, $F_{By} = 265\ \text{N}$, $F_B = 266{,}3\ \text{N}$.

4.37 $S_1 = 7{,}64\ \text{kN}$, $S_2 = 1{,}27\ \text{kN}$, $F_{Ax} = 6{,}3\ \text{kN}$, $F_{Ay} = -0{,}9\ \text{kN}$, $F_A = 6{,}43\ \text{kN}$,
$F_B = 1{,}27\ \text{kN}$.