```matlab
clc, clear all
%% Parametry
F = 4905; %[N]
L2 = 1.62; %[m]
L3 = L2; %[m]
Lp = linspace(0.604, 0.901);   %[m]
L41 = 1;   %[m]
Lf = 0.6; %[m]
k = 1; % číslování grafů

%% Geometrie
alfa = acos(((L3/2-Lf)^2+(L2/2)^2 - Lp.^2)/(0.25 * L2 *
L3));
beta = alfa/2;
delta = acos(((L2/2)^2 + Lp.^2 - (L3/2-Lf)^2)./(L2 * Lp));

% Transformace souřadnic (lokal->global)
x2 = L2 * cos(beta);
y2 = L2 * sin(beta);
x3 = x2;
y3 = y2;
L4 = x2;
Lfx = Lf * cos(beta);
Lfy = Lf * sin (beta);

% Zero matrix:
O = zeros(1,length(Lp));
RAx = O; RAy = O; RBx = O; RBy = O; RCx = O; RCy = O; RDx =
O; RDy = O;
REx = O; REy = O; RGx = O; RGy = O; RHx = O; RHy = O; Fp =
O;
```

```matlab
for i = 1:length(Lp)
    A = [-1, 1,      0,         0,           0,        0, 0, 0,  0,
0;
         0, L4(i),   0,         0,           0,        0, 0, 0,  0,
0;
         0, -1,      -1,        0,           0,        0, 0, 0,  0,
0;
         0,  0,       0,        1,           0,        1, 0, 0,  0,
0;
         0,  0,       1,        0,           1,        0, 1, 0,  0,
0;
         0,  0,      -x2(i), -y2(i)/2,   -x2(i)/2, 0, 0, 0,  0,
0;
         0,  0,       0,        -1,          0,        0, 0, 0,  0,
-cos(beta(i) + delta(i));
         1,  0,       0,        0,           -1,       0, 0, 0,  1,
sin(beta(i) + delta(i));
         0,  0,       0,        -y3(i)/2,   x3(i)/2, 0, 0, 0, -
x3(i),    -cos(beta(i) + delta(i))*Lfy(i) - sin(beta(i) +
delta(i))*Lfx(i);
         0,  0,       0,        0,           0,        0, 0, 1, -1,
0];
    f = [2*F, F*L41, 0, 0, 0, 0, 0, 0, 0, 0];
    r = A\f'; %Řešení soustavy rovnic A*r = f  ->  r = A^(-
1)*f

    RAy(i) = r(1); RBy(i) = r(2); RCy(i) = r(3);
    RDx(i) = r(4); RDy(i) = r(5); REx(i) = r(6);
    REy(i) = r(7); RGy(i) = r(8); RHy(i) = r(9);
    Fp(i) = r(10);
end

% Rozložení síly pístu:
Fpx = Fp .* cos(beta + delta);
Fpy = Fp .* sin(beta + delta);

%% Průběh momentu členu 2:
% (zprava) E -> C
xx1 = linspace(0, x2(1)/2);
yy1 = linspace(0, y2(1)/2);

xx2 = linspace(x2(1)/2, x2(1));
yy2 = linspace(y2(1)/2, y2(1));
% Momenty:
```

```matlab
MI2 = - REy(1) * xx1 - REx(1) * yy1;
MII2 = - REy(1) * xx2 - REx(1) * yy2 - RDy(1)*(xx2 -
x2(1)/2) - RDx(1)*(yy2 - y2(1)/2);

% Pole
delka21 = linspace(0,L2/2);
delka22 = linspace(L2/2,L2);
% GRAF
hFig = figure(k);
hold on
set(hFig, 'Position', [500 150 800 400])
title('Průběh momentu ramena 2 (zprava)')
xlabel('Délka ramena [m]');
ylabel('Moment [Nm]');
plot([delka21 delka22],[MI2 MII2],'LineWidth', 2)
hold off
%% Průběh momentu členu 3:
% (zprava) A -> H
xxx1 = linspace(0, Lfx(1));
yyy1 = linspace(0, Lfy(1));

xxx2 = linspace(Lfx(1), x3(1)/2);
yyy2 = linspace(Lfy(1), y3(1)/2);

xxx3 = linspace(x3(1)/2, x3(1));
yyy3 = linspace(y3(1)/2, y3(1));
% Momenty:
MI3 =   -RAy(1) * xxx1;
MII3 =  -RAy(1) * xxx2 - Fpx(1) *(yyy2 - Lfy(1)) - Fpy(1)
*(xxx2 - Lfx(1));
MIII3 = -RAy(1) * xxx3 - Fpx(1) *(yyy3 - Lfy(1)) - Fpy(1)
*(xxx3 - Lfx(1)) - RDx(1) * (yyy3 - y3(1)/2) + RDy(1) *
(xxx3 - x3(1)/2);

% Pole
delka31 = linspace(0,Lf);
delka32 = linspace(Lf,L3/2);
delka33 = linspace(L3/2,L3);
% GRAF
k = k+1;
hFig = figure(k);
hold on
set(hFig, 'Position', [500 150 800 400])
title('Průběh momentu ramena 3 (zprava)')
```

```matlab
xlabel('Délka ramena [m]');
ylabel('Moment [Nm]');
plot([delka31 delka32 delka33],[MI3 MII3 MIII3],'LineWidth',
2)
hold off
%% Průběh momentu členu 4:
% (zprava) A -> B
xxxx1 = linspace(0,L41);
xxxx2 = linspace(L41,L4(1));
% Momenty:
MI4 = (RAy(1) + F) * xxxx1;
MII4 = (RAy(1) + F) * xxxx2 + F * (xxxx2 - L41);

%PLOT:
k = k+1;
hFig = figure(k);
hold on
set(hFig, 'Position', [500 150 800 400])
title('Průběh momentu ramena 4 (zprava)')
xlabel('Délka ramena [m]');
ylabel('Moment [Nm]');
plot([xxxx1 xxxx2],[MI4 MII4],'LineWidth', 2)
hold off
%% Plot REAKCE
k = k+1;
hFig = figure(k);
set(hFig, 'Position', [500 150 800 400])
hold on
title('Průběhy reakcí')
xlabel('Délka pístu [m]');
ylabel('Reakce [N]');
plot(Lp,RAy,'LineWidth', 2)
plot(Lp,RBy,'LineWidth', 2)
plot(Lp,RCy,'LineWidth', 2)
plot(Lp,RDx,'LineWidth', 2)
plot(Lp,RDy,'LineWidth', 2)
plot(Lp,REx,'LineWidth', 2)
plot(Lp,REy,'LineWidth', 2)
plot(Lp,RHy,'LineWidth', 2)
plot(Lp,Fp,'LineWidth', 2)
legend('RAy','RBy','RCy','RDx','RDy','REx','REy','RHy','Fp')
hold off
```