
```

%{
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Subject: Assignment2 Q9
%}

function Ass2Prob9 ()

clear all % Clear stored variables
clc % Clear the screen
close all % Close all previously created plots

% Calls the function defined after the main function
fun = @eval;
% Initial guess of all q values
q0 = ones(1,7);
% Solve the non-linear equations simultaneously
q = fsolve(fun, q0)
end

function f = eval(q)

% Given values of li
l1 = 100;
l2 = 100;
l3 = 200;
l4 = 75;
l5 = 100;
l6 = 75;
l7 = 50;

% Non-linear function defined from the system
f(1) = q(1) - q(6) - q(2);
f(2) = q(2) - q(4) - q(3);
f(3) = q(3) + q(4) - q(5);
f(4) = q(5) + q(6) - q(7);
f(5) = l3 * q(3)^2 - l4*q(4)^2;
f(6) = l2 * q(2)^2 + l4 * q(4)^2 + l5 * q(5)^2 - l6 * q(6)^2;
f(7) = l1 * q(1)^2 + l6 * q(6)^2 + l7 * q(7)^2 -
    (5.2*10^5)*(((3.14^2)*(0.2)^5)/8/0.02/998);

end

```

Equation solved.

fsolve completed because the vector of function values is near zero as measured by the default value of the function tolerance, and the problem appears regular as measured by the gradient.

$q =$

0.2387 0.0869 0.0330 0.0539 0.0869 0.1518 0.2387

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