
Ex. 3.11

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```
clear all, close all

F = @(x1,x2,x3) [10*x1-x2-x1^2-x2^2 ...
                x1+10*x2-x3-2+x2^3 ...
                x1+3*x3-1+x3^3]';

J = @(x1,x2,x3) [10-2*x1 -2*x2-1 0;...
                1 3*x2^2+10 -1;...
                1 0 3*x3^2+3];

x = rand(3,1); %startgissningar i intervallet (0,1)
tol = 1e-12;
iter_max = 100;

hnorm=inf;
iter=1;

while hnorm>tol && iter<iter_max
    h = J(x(1),x(2),x(3))\F(x(1),x(2),x(3));

    x = x-h;
    hnorm = norm(h,2);
    iter = iter+1;
end

x
iter
F(x(1),x(2),x(3))

x =
    0.027988903754502
    0.227396493538185
    0.313712322003319
iter =
     6
ans =
    1.0e-16 *
   -0.138777878078145
   -0.485722573273506
   -0.659194920871187
```

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