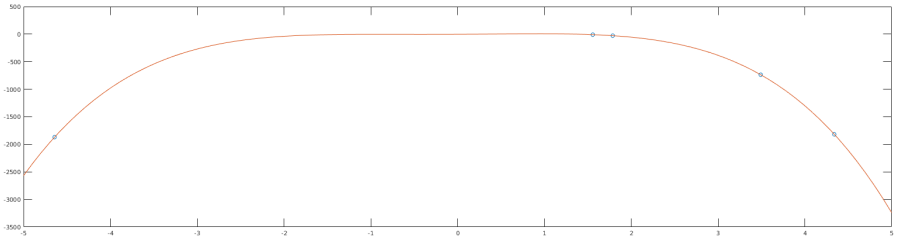
Aufgabe 9.44

```
x0 = 10*rand(5,1)-5;
p_coeff=[-5 -3 9 8 -3];

y0=polyval(p_coeff,x0);

x = linspace(-5,5)';
y = polyval(p_coeff,x);

dbtype newtonIntpol.m
p = newtonIntpol(x0,y0,x);
plot(x0,y0,'o',x,p)

display('||p(x_eval)-y_{exakt}||_{oo}')
max(abs(y-p))
```

```
1     function p=newtonIntpol(x0,y0,x)
2
3     n=length(y0);
4     c=y0;
5     coeff=[y0(1);zeros(n-1,1)];
6
7     for j=1:n-1
8
9         c = (c(2:n-j+1)-c(1:n-j))./(x0(1+j:n)-x0(1:n-j));
10        coeff(j+1) = c(1);
11    end
12
13    p = (x-x0(n-1))*coeff(n);
14    for k=n-1:-1:2
15        p=(x-x0(k-1)).*(coeff(k)+p);
16    end
17    p=p+coeff(1);
18
19    end
||p(x_eval)-y_{exakt}||_{oo}

ans =

   9.4929e-12
```



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