
Newton Polynominterpolation

Student name: M. Syarif Hidayatullah

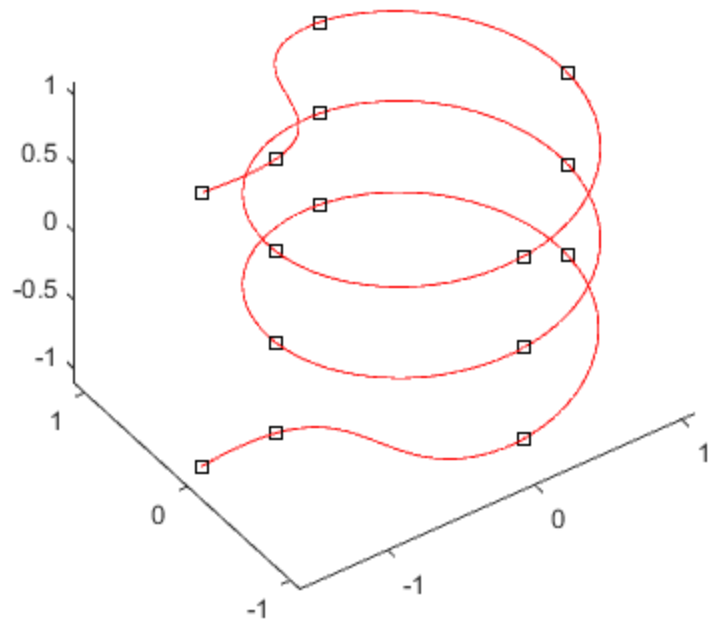
Tutor: Ilja Kalmykov

Exercise sheet 5

```
x = [-1.5; -1; 0; 1; 0; -1; 0; 1; 0; -1; 0; 1; 0; -1; -1.5];
y = [0; 0; -1; 0; 1; 0; -1; 0; 1; 0; -1; 0; 1; 0; 0];
z = [-6; -6; -5; -4; -3; -2; -1; 0; 1; 2; 3; 4; 5; 6; 6]./6;

t=x-x;
n=size(t);

for i=1:n-1
t(i+1) = t(i) +(x(i+1)-x(i)).^2 +(y(i+1)-y(i)).^2 +(z(i+1)-z(i)).^2;
end
Nx = divDiff(t, x);  Ny = divDiff(t, y);  Nz = divDiff(t, z);
tp = linspace(t(1), t(end), 666);
xp = hornerNewton(Nx, t, tp);
yp = hornerNewton(Ny, t, tp);
zp = hornerNewton(Nz, t, tp);
plot3(x, y, z, 'ks', xp, yp, zp, 'r-');
axis equal; view(-35, 40); axis([-1.6, 1.1, -1.1, 1.1, -1.1,
1.1]);
```



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