

```
clc;
clear;
syms x y;
%% test for tutorial question
d2f = -y; d3f=-1; xa=0; xb=1; f0=0; N=1000; s=1.1; delta=0.001; Nmax=100;yb=1;
[y1_test, iter_test, s_test]=shoot(d2f, d3f, xa, xb, f0, N, s, delta, Nmax, yb);
% run problem 4
% 1
d2f = -y^2 * x; d3f = -x*2*y; xa = 0; xb = 1; f0 = 0; N = 1000;
s = 2.5; delta = 0.001; Nmax = 100;yb = 2;
[y1, iter1, s1, x1]=shoot(d2f, d3f, xa, xb, f0, N, s, delta, Nmax, yb);

N = 100;
s = 2;
[y2, iter2, s2, x2]=shoot(d2f, d3f, xa, xb, f0, N, s, delta, Nmax, yb);

N = 1000;
s = 2;
[y3, iter3, s3, x3]=shoot(d2f, d3f, xa, xb, f0, N, s, delta, Nmax, yb);

N = 100;
s = 2.5;
[y4, iter4, s4, x4]=shoot(d2f, d3f, xa, xb, f0, N, s, delta, Nmax, yb);

hold all
plot(x1, y1, '-');
plot(x2, y2, '-.');
plot(x3, y3, '.');
plot(x4, y4, '--. ');
legend('N 1000 s 2.5', 'N 100 s 2', 'N 1000 s 2', 'N 100 s 2.5');
hold off
```