**Homework 04**

Mech307

Ekrem Yiğiter – 59721

1)



A = 818.6146 B = 0.2479 y(0.3) = 759.9535

2)



A = 1248.8034 B = 351.9020 C = 101.3138 y(8.0) = 3054.6434

3)



A = 310.3788 B = 0.6427 C = 394.6627 y(8.0) = 310.3788

Codes:

Pr1:

clc;

clear all;

close all;

X = [0 1 2 3 4 5 6 7];

Y = [810 639 498 389 306 241 190 139];

Z = log(Y);

P = polyfit(X,Z,1);

m = P(1);

b = P(2);

c = exp(b);

xx = linspace(X(1)-1, X(end)+1, 9001);

yy = c\*exp(m\*xx);

i = find(xx >= 0.2999999 & xx <= 0.300000001);

fprintf('A = %.4f B = %.4f y(0.3) = %.4f\n',c,abs(m),yy(i));

plot(X,Y,'ro',xx,yy,'b-');

Pr2:

clc;

clear all;

close all;

X = [0 1 2 3 4 5 6 7]';

Y = [1250 1700 1945 2160 2370 2545 2710 2890]';

C = [X.^0 sqrt(X) X];

u = (C'\*C)\(C'\*Y);

A = u(1);

B = u(2);

D = u(3);

xx = linspace(X(1), X(end)+1, 8001);

yy = A + B\*sqrt(xx)+ D\*xx;

i = find(xx == 8.0);

fprintf('A = %.4f B = %.4f C = %.4f y(8.0) = %.4f\n',A,B,D,yy(i));

plot(X,Y,'ro',xx,yy,'b-');

Pr3:

clc;

clear all;

close all;

X = [10 20 30 40 50]';

Y = [705 926 948 1039 1538]';

C = [X.^0 X.^2 sin(0.1\*X)];

u = (C'\*C)\(C'\*Y);

A = u(1);

B = u(2);

D = u(3);

xx = linspace(X(1)-10, X(end)+10, 60001);

yy = A + B\*xx.^2+ D\*sin(0.1\*xx);

i = find(xx == 0);

fprintf('A = %.4f B = %.4f C = %.4f y(8.0) = %.4f\n',A,B,D,yy(i));

plot(X,Y,'ro',xx,yy,'b-');