
John Gibson, Lab 3 Math 445

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Problem 1:

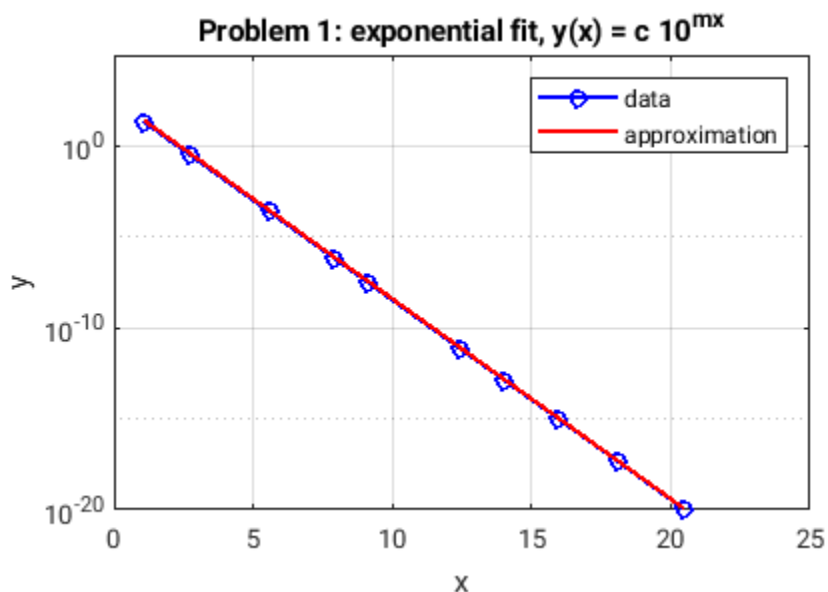
Fit function to x,y data in file data1.asc

```
d = load('data1.asc'); % load data from file data1.asc into matrix d
x = d(:,1);           % assign 1st column of d to vector x
y = d(:,2);           % assign 2nd column of d to vector y

fig = figure(1);
fig.Position = [0.1 0.1 450 300];
clf();                % clear figure
semilogy(x,y, 'bo-', 'linewidth', 1.5); % plot data as blue line
hold on;              % hold figure
grid on               % plot a coordinate grid

yapprox = 400*10.^(-1.1*x); % constants estimated from graph of data

plot(x, yapprox, 'r-', 'linewidth', 1.5) % red dotted line
xlabel('x')
ylabel('y')
legend('data', 'approximation')
title('Problem 1: exponential fit,  $y(x) = c 10^{mx}$ ');
```



Problem 2:

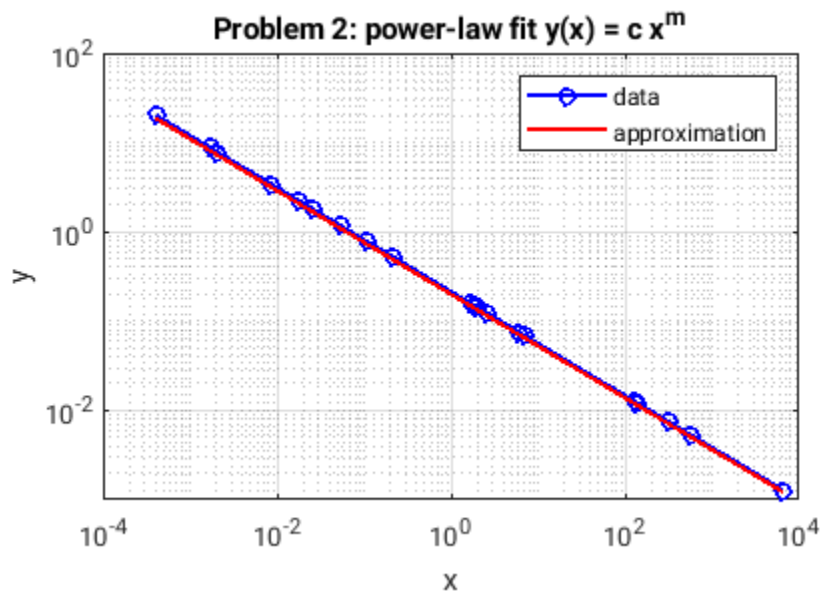
Fit function to x,y data in file data3.asc

```
d = load('data3.asc'); % load data from file data1.asc into matrix d
x = d(:,1);           % assign 1st column of d to vector x
y = d(:,2);           % assign 2nd column of d to vector y
clf();                % clear figure

loglog(x,y, 'bo-', 'linewidth', 1.5); % plot data as blue line
hold on;              % hold figure
grid on               % plot a coordinate grid

yapprox = 0.2*x.^(-0.58); % consts estimated from graph of data

plot(x, yapprox, 'r-', 'linewidth',1.5) % red dotted line
xlabel('x')
ylabel('y')
legend('data', 'approximation')
title('Problem 2: power-law fit y(x) = c x^m');
```



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